

**‘Getting on with life’:
Smokers’ experiences of posttraumatic growth
following a myocardial infarction**

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at Cardiff University and the South Wales Doctoral Programme in Clinical Psychology.

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I would like to dedicate this thesis to my dad Glenn; my inspiration!

Abstract

There is a gradual decline in the mortality rates for this Myocardial Infarction (MI), which means that more people are surviving this health event. Survivors of MIs have frequently reported that they considered their experience of this health event to be traumatic. However, research into the experience of Posttraumatic Growth (PTG) with survivors of an MI is limited, and within subgroups (e.g. smokers) research does not exist to date. The aim of this research was to explore the experience of PTG in people who have had an MI and were smokers at, or recently before, the time of their MI. Six participants were recruited from the Cardiac Rehabilitation Service in south Wales. Using a semi-structured interview, participants were asked about their experiences of relationships, recovery, view of the world, values and the future following their MI. Interpretative Phenomenological Analysis was used to analyse the participant's responses. Four super-ordinate themes of smokers' experiences of PTG following an MI emerged from the interviews: *'Processes Involved in Growth'*, *'What is Important and Valued'*, *'Changes in Self'*, and *'Getting on with Life'*. These themes were discussed in relation to PTG research and the limited number of studies found following a systematic review of literature exploring PTG in those who had survived an MI. The implications of these findings are discussed in relation to cardiac rehabilitation services, clinical psychologists' role with this patient group and future research.

Contents

<u>1. CHAPTER One: Introduction</u>	1
<u>1.1 Overview</u>	1
<u>1.2 Rationale for the Research</u>	1
<u>1.3 Myocardial Infarction</u>	3
<u>1.3.1 Epidemiology</u>	4
<u>1.3.2 Risk Factors for a Myocardial Infarction</u>	5
<u>1.3.2.1 Smoking</u>	5
<u>1.3.2.2 Physical Fitness/ Activity</u>	6
<u>1.3.2.3 Alcohol Consumption</u>	6
<u>1.3.2.4 Cholesterol</u>	7
<u>1.3.2.5 Nutrition</u>	8
<u>1.3.2.6 Stress</u>	8
<u>1.3.3 Prognosis</u>	9
<u>1.3.4 Interventions</u>	10
<u>1.4 Trauma</u>	10
<u>1.4.1 Posttraumatic Growth</u>	12
<u>1.4.2 Criticisms and Alternatives to Tedeschi and Calhoun's Model of Posttraumatic Growth</u>	15
<u>1.4.3 Posttraumatic Growth Following Health Events</u>	17
<u>1.5 Systematic Review: Posttraumatic Growth Following a Myocardial Infarction</u>	18
<u>1.5.1 Introduction</u>	18
<u>1.5.2 Development of the Systematic Review Question</u>	18
<u>1.5.3 Search Strategy and Terms</u>	19
<u>1.5.4 Inclusion and Exclusion Criteria</u>	19
<u>1.5.5 Search Process</u>	20
<u>1.5.6 Summary of Studies Included in the Systematic Review</u>	22
<u>1.5.7 Quality Review of Relevant Studies</u>	31
<u>1.5.7.1 Narrative of Quality Review</u>	35
<u>1.5.8 Synthesis of Systematic Review Studies</u>	36
<u>1.5.9 Summary of Systematic Review and Implications for Future Research</u>	43

<u>1.6 Gaps in the Research</u>	45
<u>1.7 Conclusions</u>	46
<u>1.8 Current Research</u>	47
<u>1.8.1 Rationale</u>	47
<u>1.8.2 Aims of the Current Research</u>	48
<u>2. Chapter Two: Methodology</u>	50
<u>2.1 Overview</u>	50
<u>2.2 Qualitative Methodology</u>	50
<u>2.3 Rationale for Using Qualitative Methodology</u>	51
<u>2.4 What is Interpretative Phenomenological Analysis?</u>	52
<u>2.4.1 Phenomenology</u>	52
<u>2.4.2 Hermeneutics</u>	53
<u>2.4.3 Idiography</u>	54
<u>2.5 Limitations of Interpretative Phenomenological Analysis</u>	54
<u>2.5.1 The Function of Language</u>	55
<u>2.5.2 Appropriateness of Descriptions of Experience</u>	55
<u>2.5.3 Account versus Description</u>	56
<u>2.6 Why Choose Interpretative Phenomenological Analysis Over Other Qualitative Methods?</u>	56
<u>2.7 Rationale for Using Interpretative Phenomenological Analysis</u>	59
<u>2.8 Ensuring Quality with Interpretative Phenomenological Analysis</u>	59
<u>2.8.1 Researchers' Perspective</u>	61
<u>2.8.2 Clinical Governance</u>	61
<u>2.9 Ethics</u>	62
<u>2.9.1 Confidentiality</u>	62
<u>2.9.2 Informed Consent</u>	63
<u>2.9.3 Right to Withdraw</u>	64
<u>2.10 Design</u>	64
<u>2.10.1 Sample Size</u>	64
<u>2.10.2 Participants</u>	65
<u>2.10.3 Demographics</u>	66

<u>2.10.4 Semi-Structured Interview</u>	66
<u>2.10.5 Procedure</u>	67
<u>2.10.6 Data Analysis</u>	68
<u>3. Chapter Three: Results</u>	70
<u>3.1 Overview of the Results Section</u>	70
<u>3.2 Details of the Participants</u>	70
<u>3.2.1 Participant 1: Adam</u>	71
<u>3.2.2 Participant 2: Ben</u>	71
<u>3.2.3 Participant 3: Carl</u>	71
<u>3.2.4 Participant 4: Dan</u>	72
<u>3.2.5 Participant 5: Eli</u>	72
<u>3.2.6 Participant 6: Flynn</u>	73
<u>3.3 Qualitative Analysis</u>	73
<u>3.3.1 Super-ordinate Theme: What is Important and Valued</u>	74
<u>3.2.2 Super-ordinate Theme: Changes in Self</u>	79
<u>3.2.3 Super-ordinate Theme: Processes Involved in Growth</u>	82
<u>3.2.4 Super-ordinate Theme: Getting on with Life</u>	86
<u>3.3 Conclusions</u>	86
<u>4.Chapter Four: Discussion</u>	89
<u>4.1 Overview of Chapter</u>	89
<u>4.2 Research Findings and Current Literature</u>	89
<u>4.2.1 Super-ordinate Theme: Processes Involved in Growth</u>	90
<u>4.2.2 Super-ordinate Theme: What is Important and Valued</u>	94
<u>4.2.3 Super-ordinate Theme: Changes in Self</u>	98
<u>4.2.4 Super-ordinate Theme: Getting on with Life</u>	100
<u>4.3 Clinical and Service Implications</u>	102
<u>4.3.1 Clinical Implications for Cardiac Rehabilitation Services</u>	102
<u>4.3.2 Implications for Clinical Psychologists</u>	104
<u>4.4 Strengths and Limitations of this Study</u>	105
<u>4.4.1 Recruitment and Sample</u>	106
<u>4.4.2 Data Collection and Analysis</u>	106

<u>4.4.3 Ensuring Credibility</u>	107
<u>4.5 Implications for Future Research</u>	108
<u>4.6 Conclusions</u>	109
<u>References</u>	111

List of Tables

- Table 1:** Factors affecting a poor or a good prognosis following an MI
- Table 2:** Summary of all studies included in the systematic review
- Table 3:** Scores for each study using the CASP Critical Appraisal Checklist (2010)
- Table 4:** Quality guidelines for qualitative research (Smith *et al.*, 1999)
- Table 5:** Summary of Participants' Demographics.

List of Figures

Figure 1: Trajectories of functioning following an adverse event (Joseph, 2011)

Figure 2: Flow Chart of the Review Process

Figure 3: Similarities and differences between IPA, discourse analysis and grounded theory (Starks & Trinidad, 2007)

Figure 4: Super-ordinate Themes, Master Themes and their Interactions

List of Appendices

- Appendix 1:** CASP Checklist (2010)
- Appendix 2:** Powys Research Ethics Committee Approval Letter
- Appendix 3:** Research and Development Approval Letter
- Appendix 4:** Participant Information Sheet
- Appendix 5:** Participant Consent Form
- Appendix 6:** Participant Debriefing Sheet
- Appendix 7:** Demographics Questionnaire
- Appendix 8:** Interview Schedule
- Appendix 9:** Sample of Reflective Diary

1. CHAPTER ONE: INTRODUCTION

1.1 Overview

The following introduction presents the background to the current study. It outlines the rationale and the focus of the research and then goes on to describe the health condition being studied, which is a Myocardial Infarction (MI). The definition of an MI, epidemiology, risk factors, prognosis, and interventions for this health event are then discussed. The introduction goes on to explore how health events (specifically MIs) can be considered traumatic, and the impact that this can have on a person but from the positive perspective of recovery and growth. This then paves the way for a more detailed analysis of the literature through a systematic review of papers which have examined MI and Posttraumatic Growth (PTG).

1.2 Rationale for the Research

According to the World Health Organisation (WHO, 2012) ischemic heart disease (IHD) is the leading cause of mortality around the world. Most deaths from IHD are caused by an MI, of which there are approximately 103,000 cases (both fatal and non-fatal) each year in the UK (British Heart Foundation, 2014). Health promotion, education and prevention strategies have focused on the risk factors for MI that can be modified through changes in health behaviours (see NHS Choices, 2014; British Heart Foundation, 2014; for some of the leading examples of the resources available). Despite a gradual decline in this behaviour over recent decades, one of the leading causes of an MI worldwide is still smoking (Yusuf *et al.*, 2004). There are numerous reasons why a person may begin smoking (such as peer pressure, to appear confident, curiosity etc.) but the reasons commonly cited as to why people continue to smoke are due to one or more of the following (Jarvis, 2004):

- Addiction – people are addicted to the nicotine contained in the cigarette, without which they have withdrawal symptoms.
- Social relations – smoking is a part of a social norm or social habit amongst peers or family.
- Emotional regulation – smoking is used as a way of coping with stressful situations or heightened emotions.
- Habit – having a cigarette has become part of a routine (e.g. smoking after dinner, or smoking whilst having a cup of coffee) has become habitual.

Following a non-fatal MI, patients are actively encouraged to change their health behaviours (such as to cease smoking) through cardiac rehabilitation programmes (Jones *et al.*, 2012). The evidence base supporting such programmes suggests that a combination of physical and psychological health changes produce the best outcomes for those who have experienced an MI (see NICE Guidelines MI: Secondary Prevention, 2013). Cardiac rehabilitation programmes offer a variety of interventions such as exercise, psycho-education about medication, stress management, relaxation, healthy eating and smoking cessation. Their primary aim is prevention of a further MI; particularly one that is fatal.

In recent years there has been increased interest in positive psychological change post MI. Posttraumatic growth (PTG) is purported to positively affect or improve one or all of the following areas: life in general, relationships, personal strength, spirituality, and new possibilities (Tedeschi and Calhoun, 1996). There have been some studies that have explored PTG as part of the wider experience of having an MI within specific groups (such as males - Hutton & Perkins, 2008; and females - White, Hunter & Holttum, 2007). To date, however, there have been no studies that have specifically explored PTG in smokers who have had an MI. Given that the factors thought to underlie continued smoking include behavioural, social, emotional and biological elements (Jarvis, 2004); this study aimed to explore the meaning attributed to their first myocardial infarction by individuals who were smokers at or recently before their MI. In particular, it aimed to use PTG constructs to examine the process by which participants, who were smokers

either at the time of their MI or in the years immediately preceding it, made sense of the effect that the MI had had on their well-being and recovery.

1.3 Myocardial Infarction

Within medical literature myocardial infarction is referred to as 'acute myocardial infarction' and takes two forms: STEMI and N-STEMI. The definition and process implied by the use of these terms can be explained as follows. The term MI refers to a physiological change in which there is cell death due to the partial or total blockage of an artery (known as ischaemia) in the heart. Typically, an MI is caused by the narrowing of the coronary arteries through atherosclerosis. This is the process in which cholesterol plaques form on damaged areas of the inside of the artery therefore preventing normal blood flow. However, the antecedent to the MI is a rupture of the plaque which forms a blood clot (thrombus) over the plaque resulting in the immediate blockage of the artery (Jain, 2008). The rate and extent of the blockage of the artery by the blood clot will determine what clinical condition has occurred as a result of the plaque rupturing. Of these conditions, acute MI is the most serious.

If the thrombus that is blocking the artery is big enough to block the artery and keep it blocked then there will be an abnormal reading on the electrocardiogram (called an acute ST-elevation). This is known as a ST-elevation myocardial infarction (STEMI). This results in the continuous death of the tissue of the heart muscle. When the thrombus blocks the artery partially or only temporarily the blood supply to the heart muscle is only reduced or stopped for a short period of time. This will often result in the death of some of the heart muscle tissue which is identified through the presence of troponin. This is a protein that is released into the blood serum in order to repair damage to the heart. The greater the amount of damage the greater the levels of troponin will be in the blood. This type of MI does not feature a ST-elevation on the electrocardiogram, and is therefore known as a Non-ST Elevation Myocardial Infarction (N-STEMI) (Jain, 2008).

1.3.1 Epidemiology

“Incidence of myocardial infarction has decreased in a number of developed countries during the past three decades, including the UK, driven by favourable changes in risk factors.”

(Department of Health, 2012; Page 57)

Incidence rates for MI are estimated at 268,000 per year for people of all ages; with 55% of these cases being male and 45% being female (NICE, 2013). It is estimated that out of the general population aged 30 to 69, approximately 600 men and 200 women per 100,000 will experience an MI each year. The prevalence rates are high with approximately 1.5% of men and 0.8% of women having had an MI in the UK (Department of Health, 2012). Within Wales the Welsh Government conducted the Welsh Health Survey 2011 (Welsh Government, 2012) in which 5% of all male respondents and 3% of all female respondents disclosed that they had been diagnosed with an MI. This demonstrates the significant difference between the prevalence rates for men and women but also shows that prevalence rates converge with increasing age. This also demonstrates that the prevalence rates for men and women in Wales is higher than in the UK as a whole.

When considering mortality, it is estimated that 50% of those aged 25 to 65 years old who die as a result of their MI do so within one hour of the onset of the symptoms. Between 20-25% of patients who are admitted to hospital due to an MI die within 30 days. Overall, for both those who are admitted to hospital and those who are not, a 30 day survival following an MI is 50%. This level of fatality increases with age for both men and women with the difference between them again decreasing. The Department of Health believe that the decrease in gender difference in mortality with age is predominantly due to “... more elderly women surviving to be admitted for myocardial infarction compared to elderly men.” (Department of Health, 2012; Page 58).

1.3.2 Risk Factors for a Myocardial Infarction

The major risk factors for MI can be classified as behavioural as they are specifically related to the health behaviours a person engages in. The most widely acknowledged modifiable risk factors are outlined below, though it is important to note that this is not an exhaustive list as other factors such as genetic predisposition (non-modifiable factors) exist also.

1.3.2.1 Smoking

The British Heart Foundation (2013) emphasise the importance of stopping smoking in order to prevent heart disease and cardiac events such as an MI. Smoking has been identified as causing damage to the arterial lining (leading to fatty deposits in the artery), increasing blood pressure and increasing the likelihood of blood clots. All of which form the basis for an MI. But the impact of smoking on a person's chance of having an MI is dependent upon a number of other factors, such as: age, sex, amount of tobacco smoked per week, how long the person has been smoking and whether they have ever smoked (i.e. are they now an ex-smoker).

Prescott *et al.* (1998) looked prospectively at the risk of having an MI in males and females who smoked and did not smoke. A total of 11,472 women and 13,191 men were followed for a mean of 12.3 years (with an age range of 20 to 93 years old). They paid particular attention to the smokers in terms of the amount of tobacco they smoked and whether or not they inhaled the smoke. Results revealed that ex-smokers had the same level of risk of an MI as those who did not smoke. There was a clear positive relationship between the amount of tobacco smoked and the risk of having an MI. This was a relationship replicated by both smokers who inhaled and those that did not.

However the risk was less for those that did not inhale. Overall female smokers had a significantly higher risk of having an MI than male smokers.

1.3.2.2 Physical Fitness/ Activity

Engaging in regular moderate physical exercise each week has been widely recognised and endorsed as providing a healthier lifestyle and improves overall wellbeing (NHS Choices, 2014). When it comes to specific risk factors in relation to keeping the heart muscle healthy Williams (2001) questioned whether it was the amount of physical exercise that a person engages in or their level of cardiorespiratory fitness that made the difference in reducing their risk of a cardiac disease. Williams defined physical exercise as:

"...voluntary movement produced by skeletal muscles that results in energy expenditure." (Williams, 2001; Page 1) and cardiorespiratory fitness as:

"...cardiorespiratory fitness relates to the ability of circulation and respiration to supply oxygen during sustained physical activity." (Williams, 2001; Page 1).

Williams' aim was to examine the relationship between leisure physical exercise (such as walking) and fitness (such as competitive sports) with CVD. His meta-analysis revealed that risk of CVD or CHD decreased linearly as physical exercise increased. The same was also true of cardiorespiratory fitness but the risk reduction was greater than that seen in physical exercise. Williams concluded that cardiorespiratory fitness is a distinct risk factor from physical exercise with both being important in reducing cardiac disease, but with an emphasis on cardiorespiratory fitness over physical exercise.

1.3.2.3 Alcohol Consumption

When considering alcohol as a risk factor for MI there are a number of different sub factors that need to be considered, such as: amount, frequency and type. Studies have consistently found that people who drink low or moderate amounts of alcohol are less

likely to develop coronary heart conditions such as an MI than those who drink heavily or do not drink at all (Di Castelnuovo *et al.*, 2002). A study compared the relationship between different drinking cultures in France and Northern Ireland (Ruidavets *et al.*, 2010). The average alcohol consumption over the course of a week was similar in both countries but it was the pattern in which it was drunk that differed. Those who disclosed themselves as being binge drinkers (in either country) were twice as likely to experience an MI than those who drank regularly. In Northern Ireland binge drinking was 20 times more likely than in France. This provided some evidence that drinking high volumes of alcohol within a short period of time (binge drinking) is linked to an increased risk of experiencing an MI.

There is also some debate about whether the type of alcohol consumed mediates the risk of experiencing an MI. In a meta-analysis of wine and beer consumption (Di Castelnuovo *et al.*, 2002) people who consumed low to moderate amounts of wine had a 32% reduction in their risk of a vascular event such as an MI. For those who drank beer there was also a small reduction in their risk of a vascular event, however this was lower than the level of risk reduction seen in those who drank wine. More recently, red wine has become the focus of attention for cardiovascular risk reduction. Particular compounds within red wine (namely polyphenols, alcohol, and resveratrol) have been found to reduce the development and progression of atherosclerosis (Lippi, Franchini and Guidi, 2010). This is one of the many beneficial and cardio-protective qualities of red wine (others examples include reducing blood pressure and the viscosity of blood).

1.3.2.4 Cholesterol

Cholesterol is a type of fat that is carried around the body by proteins. When the protein and the cholesterol combine it makes what is known as a lipoprotein, of which there are two types (Low-density lipoproteins and High-density lipoproteins). The British Heart Foundation (2014) defines these two types of lipoprotein as:

1) *“Low-density lipoprotein (LDL) is known as the bad type of cholesterol. LDL carry cholesterol from your liver to the cells that need it.*

2) *High-density lipoprotein (HDL) is known as the good type of cholesterol. HDL carry cholesterol away from the cells and back to the liver to be broken down.”*

(Taken from British Heart Foundation, 2014).

There are a number of causes of high cholesterol including: smoking, high levels of alcohol consumption, lack of physical exercise, disease of the kidneys or liver and diets that are high in saturated fat. A high level of LDL increases the risk of thrombosis and atherosclerosis, and subsequently increases the risk of cardiovascular conditions such as an MI (Nordestgaard *et al.*, 2010).

1.3.2.5 Nutrition

It is now widely recognised that a diet of high saturated fat and trans fats (such as those found in dairy based food like butter and cheese), low consumption of fruit and vegetables and high levels of meat can be detrimental to cardiovascular health (British Heart Foundation, 2014). Gardener *et al.* (2011) found protective effects of a Mediterranean diet (which consists of fruit, vegetables, less meat, fish, and more plant oil based fats) against ischemic stroke, MI, and vascular death. They found that the Mediterranean diet reduced the risk of these vascular related health events for men, women, white, black and Hispanic people. Thus showing the effect the Mediterranean diet has across a range of different people. NICE guidelines (MI: Secondary Prevention, 2013) recognise the benefits of this diet and have recommended it not only as a preventative lifestyle change following an MI but also in order to prevent further MIs from occurring.

1.3.2.6 Stress

High levels of stress alone are not a direct risk factor for an MI. Moreover, it is a person's management of this stress that is linked to increased risk of an MI. Those people who engage in behaviours such as smoking, drinking alcohol and over eating as a result of stress are at an increased risk of experiencing an MI (British Heart Foundation, 2013). Yusuf *et al.* (2004) conducted a global study into the effects of modifiable risk factors related to MI. Within this study depression, locus of control, perceived stress, and life events under the umbrella category of psychosocial factors were explored and found to be significant factors in relation to risk of an MI. These factors had most effect in North America, Middle East and Western European areas. However stress was not found to have as significant an effect as smoking and abnormal lipids; these were found to be the two most significant factors accounting for two thirds of the world's MIs.

1.3.3 Prognosis

The prognosis of a person who has experienced an MI is determined by a combination of post MI conditions, health behaviours and inherent risk factors. Table 1 below outlines the factors that would predict a poor prognosis and those that would predict a good prognosis (NICE, 2013).

Poor Prognosis	Good Prognosis
Older in age	Younger in age
Low left ventricular fraction (where the output of the heart is not enough to send blood to all parts of the body)	Good residual left ventricular function
Frequent extra heart beats or contractions (ventricular extrasystoles)	Normal post-infarction exercise test
Pain in the heart caused by the narrowing of the arteries (Angina)	
Continued smoking	Engage in a healthy lifestyle (i.e. healthy diet, more regular exercise, reduction of alcohol, stopping smoking).

Other conditions such as depression or diabetes	
Cardiac failure	

Table 1: Factors affecting a poor or a good prognosis following an MI

1.3.4 Interventions

Interventions for MI can be classified into three distinct categories: Preventative, reactive and long term risk reduction. In order to reduce the risk of a first MI a combination of behavioural and pharmacological interventions are available, such as: smoking cessation, eating a healthy diet, and medication to reduce high blood pressure or cholesterol levels. But when an MI occurs, early access to medical interventions such as defibrillation and medications that will break down blood clots or thin blood can prevent death.

For longer term interventions (NICE, 2013), to prevent further MI's or other cardiac conditions and to generally improve health and well-being following an MI involves a combination of:

- Risk reduction behaviours (such as improving diet and increasing physical activity),
- Psychological support and stress reduction,
- Compliance with medication (such as Beta Blockers and those that lower cholesterol),
- And coronary revascularisation (though only for certain patients).

1.4 Trauma

The Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-V; American Psychiatric Association, 2013) definition of a trauma (or stressor in the language of DSM) in relation to Post Traumatic Stress Disorder (PTSD) is:

“The person was exposed to: death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence” (DSM-V, 2013).

This could be through direct or indirect exposure (e.g. through a relative experiencing the event, or through professionals being repeatedly exposed to details of traumatic events). Typically a person would have to present with symptoms such as anxiety, fear, arousal, intrusive thoughts/ images, and avoidance/ numbing in order to be diagnosed with PTSD (Tedstone & Tarrier, 2003).

The onset of a medical condition such as an MI would appear to fulfil the DSM-V criteria of a trauma, as it is often sudden, unexpected and life threatening (Tedstone & Tarrier, 2003). Wiedemar *et al.* summarised that:

“Patients commonly perceive a heart attack as a vital threat to their life, inflicting feelings of fear, loss of control, and helplessness.” (Wiedemar et al, 2008; Page 113)

In a review of the prevalence of PTSD in adults who had had an MI, Gander and von Kanel (2006) found a variance of 0-25% across 13 studies. The difference between the rates could be partly explained through differing time points that the people were involved in the study (i.e. 4 weeks to 22 months post MI). However, it remains that the average rate of prevalence was 15%; this is double the rate of PTSD in community populations (Gander & von Kanel, 2006). Guler *et al.* (2009) investigated the prevalence rates of PTSD in MI patients and found that 19.5% of their sample of 394 people met the criteria for a clinical interview following completion of the Posttraumatic Diagnostic Scale (PDS). Of those who were subsequently interviewed, 14 met the criteria for PTSD (approximately 3.5% of sample) and 26 for sub-clinical PTSD symptoms (approximately 6.5% of sample). Using the Impact of Events Scale (IES) Tedstone and Tarrier's (2003) review found that five studies reported symptoms of avoidance and intrusions. In all studies, however, avoidance was found to be more prevalent than intrusions. Tedstone and Tarrier (2003) explain this difference by suggesting that MI patients may be avoiding situations or stress that they believe may cause reinfarction; therefore avoidance has become a habit to protect against this.

This evidence suggests that PTSD and/ or PTSD symptoms are frequent amongst those who experience an MI; and further supports the argument that having an MI can be perceived as traumatic given that PTSD or PTSD symptoms are a frequent consequence. However, not all people experience an MI as traumatic. For example, in Guler *et al.*'s (2009) study 90% of their sample did not meet the criteria for clinical or sub-clinical PTSD. Therefore their study provided evidence that not everyone who has an MI experiences PTSD or PTSD symptoms as a result. In fact, for some who experience an MI, there is a period of positive growth, known more widely as posttraumatic growth (PTG) (e.g. Leung *et al.*, 2010; Norekvål *et al.*, 2008; Petrie *et al.*, 1999). The concept and process of PTG will be discussed in the following section and will be followed by a systematic review of literature specifically examining PTG in those who have had an MI.

1.4.1 Posttraumatic Growth

According to researchers such as Joseph (2011) there are three broad categories of response to adversity or trauma. The first is that when trauma occurs a person is changed permanently and is unable to return to the way they were before (Impairment). Then there are those who, within a relatively short period of time, return to how they were before the trauma occurred (Recovery). The third group of people experience the trauma and are permanently changed by the event but in a positive way, so that they grow as a result (Reconfiguration/ Growth). This theory is succinctly depicted in Figure 1 below.

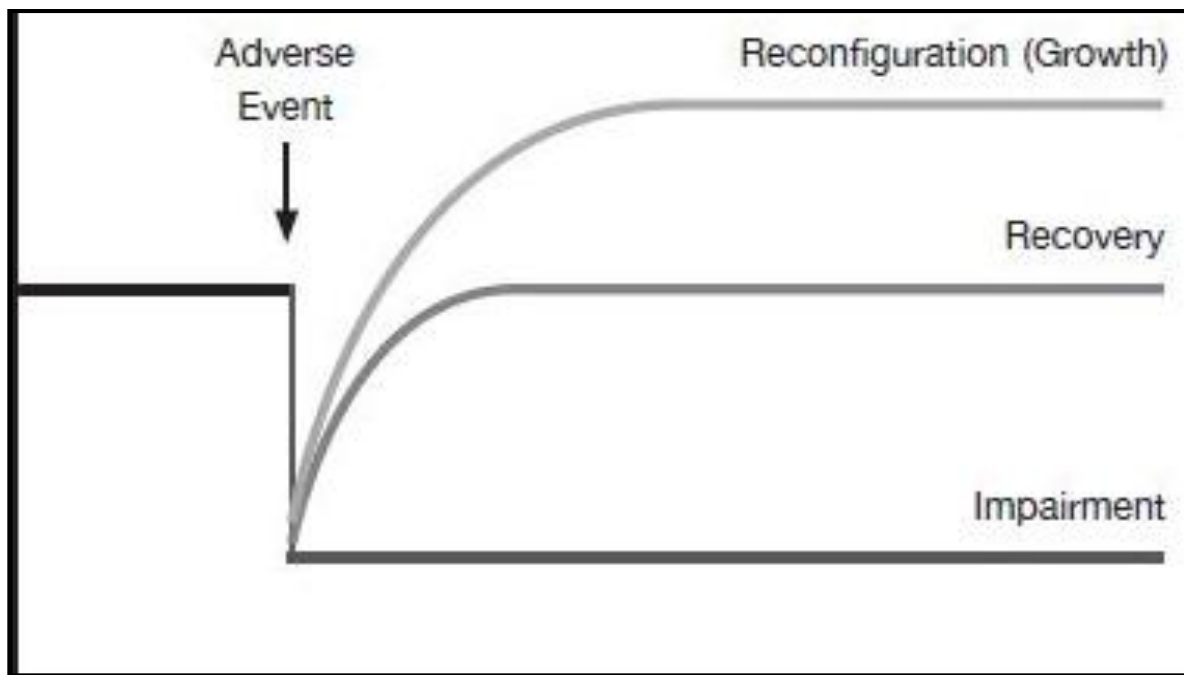


Figure 1: Trajectories of functioning following an adverse event

(Taken from Joseph, 2011; Page 72)

With the growing interest in positive psychology (Seligman, 1999; 2011) as applied to health events (e.g. Tugade & Fredrickson, 2004; Seligman, 2008) attention has turned from deficits, negativity and adversity to the positive such as happiness and well-being. With this in mind, when reflecting on the effects of trauma, it became apparent that although traumatic experiences can be negative there also exist positive aspects to life following a traumatic event. Though there are many terms for this phenomenon (such as benefit finding, adversarial growth, thriving, and stress related growth; Tedeschi & Calhoun, 2004) the most widely used, recognised and researched is Posttraumatic Growth; a term coined by Tedeschi and Calhoun (1996). Posttraumatic Growth is broadly and simply defined as the:

“Experience of positive change that occurs as a result of the struggle with highly challenging life crises”

(Tedeschi & Calhoun, 2004; Page 1).

Joseph (2011) identified three key existential ideas that are embedded within PTG. Firstly, is the recognition that things change and that life is uncertain. By recognising this, a person is then able to accept that uncertainty is part of life. Secondly, is being mindful and aware of how they are thinking, feeling and behaving and being open to changes within themselves. Thirdly is an awareness of their own agency and that the decisions they make through life are their own and have consequences. It is not surprising then that how a person's growth manifests itself following a trauma is very much dependent upon what underlying assumptions the person had before the event, and what meanings they made of the event in relation to these assumptions afterwards (Tedeschi & Calhoun, 1996). Growth is also dependent upon the personality of the person. Notably, a person who is more optimistic, extraverted and open is more likely to experience growth following a trauma (Tedeschi & Calhoun, 1996; Evers *et al.*, 2001). This links to what Joseph (2011) has postulated about PTG having awareness and acceptance of uncertainty at its core.

According to Tedeschi and Calhoun's model of PTG (1999) growth does not directly follow trauma. It is the threat and destruction of the person's assumptive world that existed before the trauma and the subsequent rebuilding of these assumptions in light of the trauma, and therefore in a new way, that produces growth. Tedeschi and Calhoun (1995) therefore argue that:

"Posttraumatic growth, then, has a quality of transformation, or a qualitative change in functioning, unlike the apparently similar concepts of resilience, sense of coherence, optimism, and hardiness."

(Tedeschi & Calhoun, 2004; Page 4).

Tedeschi and Calhoun (1996) identified five areas of life where PTG is generally reported in people who experience PTG as a result of trauma. These include:

- Life in general – this may involve a greater appreciation of the little things in life or the things that were taken for granted before the trauma.

- Relationships – these may become closer or new relationships may develop as a result of the trauma.
- Improved personal strength – a person may feel they have grown as a person or are now able to recognise that they were always strong.
- Spirituality – a person may find that their spiritual understanding may be enlightened or in fact become deepened.
- New possibilities – through adversity a person may discover that they have new opportunities or want to develop themselves in a way that they would not have thought possible prior to the trauma.

1.4.2 Criticisms and Alternatives to Tedeschi and Calhoun's Model of Posttraumatic Growth

Though Tedeschi and Calhoun PTG model has been widely recognised and robustly researched there are critics who question the validity of it. Nolen-Hoeksema and Davis (2004) begin by questioning their use of cross sectional or retrospective reports of growth that they suggest are purporting change with no objective evidence of positive change. Within this argument they also state that by not exploring PTG longitudinally Tedeschi and Calhoun are unable to truly testify to a process of change. This is a particularly crucial point, as the process of PTG (i.e. the breaking down of existing assumptions and schemas and rebuilding new ones) is one of the key components of Tedeschi and Calhoun's model.

Tedeschi and Calhoun's model of PTG is classified as an "outcome" model by Zoellner and Maercker (2006) in that it describes PTG as an outcome variable based on a number of factors that exist pre and post trauma. They put forward a different coping model of PTG to Tedeschi and Calhoun's outcome model. Within this group of coping models it is argued that the fact that a person is talking in a positive way about the impact of their trauma may be a form of self-enhancing or self-protecting illusion (McFarland & Alvero,

2000); an interpretation of meaning (Davis, Nolen-Hoeksema & Larson, 1998); a way of coping through meaning-making (Park & Folkman, 1997); or a form of coping process which results in the construction of an interpretative reality (Filipp, 1999). Maercker and Zoellner (2004) instead propose a two component model; the Janus-Face Model of self-perceived PTG. Within this model both the outcome based models (such as Tedeschi & Calhoun, 1996) and the coping models (outlined above) are amalgamated. They describe the Janus-Face Model as:

“...[assuming] that perceptions of PTG are, at least in part, distorted positive illusions that might help people counterbalance emotional distress...On the illusory side, statements of a trauma survivor could indicate some insight into self-deception...The two components of PTG are assumed to have different time courses and be related differently to adjustment. The constructive side of self-perceived PTG is correlated with health adjustment, with its adaptive effect showing in the long run. In contrast, the illusory, self-deceptive side of PTG might be correlated with self-consolidation or even with denial in the short or in the long run.”

(Zoellner & Maercker, 2006; Page 640)

Joseph (2012) suggests that the most helpful current theory that reconciles the interaction between posttraumatic stress and PTG is organismic valuing theory.

“This is a person-centred theory that draws together information processing and social cognitive theories of posttraumatic stress with research on self-determination theory. The theory shows trauma leads to a breakdown in self-structure, signalled by the experiences of posttraumatic stress indicating the need to cognitively process the new trauma related information”

(Joseph, 2012; Page 817).

Joseph and Linley (2005, 2006) argue that following a trauma people are naturally drawn to process the new information in a way which results in growth and positive well-being. The processes they refer to are ‘assimilation’ and ‘accommodation’ (Payne, Joseph & Tudway, 2007). However, organismic valuing theory and the processes underlying it are not well supported with evidence to date.

Clearly Tedeschi and Calhoun's PTG model has its critics and rivals. As the researcher is interested in the experience of PTG in people who have had an MI and were smoking at the time, it was felt that the broad areas found to be reported in those who have PTG would be a good basis on which to begin exploring experience. This study is not able to provide a longitudinal examination of the process of PTG development, but rather it examined the experience of it within a particular under-researched group. Over the last few decades, however, there has been a significant rise in research in PTG not just with traumas such as road traffic accidents and abuse, but more recently with health-related traumatic events.

1.4.3 Posttraumatic Growth Following Health Events

It has increasingly been recognised that health-related traumatic events can also result in PTG. Areas such as cancer, stroke, brain injury and arthritis (to name a few) have all been researched in relation to PTG (Tedeschi & Calhoun, 2004). Barskova and Oesterreich (2009) reviewed 68 studies in order to understand how PTG impacts on a person's physical and mental health when they have a serious medical condition. Some of the serious medical conditions included in the studies they found were: cancer, HIV/AIDS, cardiac disease, multiple sclerosis, rheumatoid arthritis, and brain and spinal cord injuries. Barskova and Oesterreich (2009) review revealed that factors associated with PTG included: indicators of mental and physical health, quality of social support and individual's coping strategies. Variations in the association between PTG and health related variables, such as pain, were seen in different sample configurations and research designs.

Focusing more specifically on the health event that is an MI, the following section of the introduction will systematically review the existing literature that studies PTG and MI.

1.5 Systematic Review: Posttraumatic Growth Following a Myocardial Infarction

1.5.1 Introduction

This systematic review aims to synthesise and critically appraise the existing qualitative and quantitative data available on Posttraumatic Growth (PTG) and myocardial infarction (MI). The review aims to assess the evidence that posttraumatic growth occurs following an MI and, where evidence exists that it does occur, which areas of life it affects the most. A systematic review of the most up to date literature in this area was conducted and the outcomes of this review were synthesised. As discussed above, there are many terms that are used synonymously with PTG. These terms were also used to populate the search array. However, in order to simplify and improve the readability of the following section, the term PTG will be used throughout. The review will begin by discussing the search process, then go on to summarise the studies found before synthesising the information from these studies into a coherent and relevant narrative. The studies will also be evaluated and the implications of their findings will be used to suggest areas for future research.

1.5.2 Development of the Systematic Review Question

The systematic review aims to answer the question: To what extent does adjustment after the experience of an MI include a growth or benefit finding process? The group of individuals involved in this study had experienced their first MI and were smokers at, or shortly before, their MI. However, smoking was not included in this systematic review as the preliminary question and subsequent literature search that included this term did not yield any results. The systematic review question and related terms were therefore broadened to include MI (without any subgroups) and PTG.

1.5.3 Search Strategy and Terms

The literature search strategy for this systematic review included combining the keywords for PTG (including 'PTG', 'benefit finding', 'thriving', 'adversarial growth', 'stress related growth', 'disease adjustment' and 'perceived benefits') and keywords related to myocardial infarction (including 'myocardial infarction' and 'heart attack'). Terms that had similar meaning (such as those for PTG or for those describing MI) were separated using the Boolean operator OR. Terms that described PTG were then combined with those that were identifying MI with the Boolean operator AND (as a brief example Posttraumatic Growth OR Thriving AND Myocardial Infarction OR Heart attack). These terms were used to search the following databases: PsycINFO, MEDLINE, PILOTS, EMBASE and Google Scholar between 1990 and 1st March 2014. Citations within journal articles and citations of relevant articles were also included if they meet the inclusion criteria.

1.5.4 Inclusion and Exclusion Criteria

The aim of the systematic review was to explore evidence that PTG occurs following an MI. As this information is currently limited both quantitative and qualitative studies were included in the review. The following inclusion and exclusion criteria were applied to the search results that were generated by each of the databases.

Inclusion Criteria

Each of the papers that were included in the final systematic review had to comply with the following inclusion criteria:

- Journal article;
- In English;
- Focus on PTG (or related term) following a diagnosed Myocardial Infarction;

- Measures including PTG-related questionnaires, unstructured, semi structured and structured interviews;
- Involved individuals or groups of individuals who had experienced an MI;
- Participants are men and/ or women;
- Participants are aged 18 years or older.

Exclusion Criteria

Papers that were excluded from the final systematic review did not conform to the inclusion criteria or were:

- Theses, books, reviews, letters and editorials,
- Studies which sampled participants with PTG from traumas other than MI (e.g. road traffic accidents, sexual abuse).

1.5.5 Search Process

Searches of the above mentioned databases yielded a total of 1473 results. Of these results a total of 121 duplicates were removed where the same article was found in the different databases. A total of 1351 papers were then screened based on their title and abstract against the inclusion and exclusion criteria. Articles were excluded for the following reasons: their format (book chapter, editorial or thesis), the participants in the studies (children, only spouses), the population being studied (cancer patients, combat veterans, victims of natural disaster, stroke survivors), focus of the study (therapeutic effects of medication/ treatments/ procedures for people who have had an MI, epidemiological studies within particular population groups). There remained a total of 11 articles following the exclusion of 1340 papers. Of the remaining papers four were excluded as the population they were studying were cardiac related however it did not state whether they had experienced an MI. At this stage the references of the full text articles were also explored for any relevant articles of which one was identified. This

article was added to the remaining seven to make a total of eight articles for the final systematic review. Figure 2 provides a flow chart for the review process.

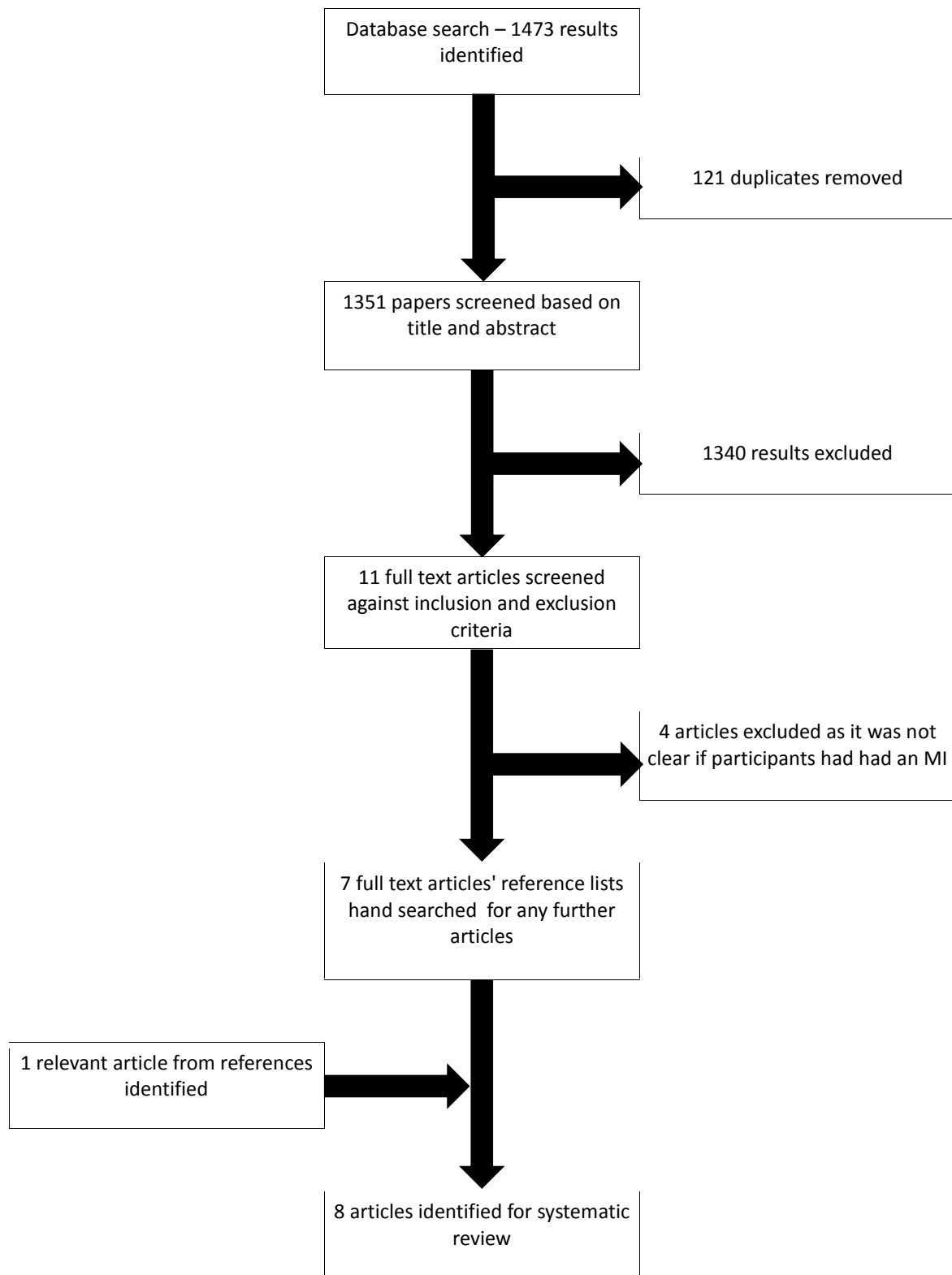


Figure 2: Flow Chart of the Review Process

1.5.6 Summary of Studies Included in the Systematic Review

What follows is a description of the design, methodology, and participants from all studies included in the review. A summary table of each of the studies included in the review can be found in Table 2.

1.5.6.1 Aims

The study aims were broadly classified into one of three categories, those that aim to establish:

- Types of PTG;
- Frequency of PTG;
- Factors correlating with PTG;
- Effects of PTG on risk of having another MI/ morbidity.

One study aimed to examine the types of positive changes reported by those who had experienced an MI (Petrie *et al.*, 1999). One study aimed to establish the frequency of positive effects in specific areas of PTG within an MI group (Laerum *et al.*, 1988) and the longevity of such positive effects (Laerum *et al.*, 1991). Whilst another study aimed to explore whether PTG is perceived by older women who have had an MI, and the frequency within which this occurred (Norekvål *et al.*, 2008). Two studies aimed to compare type and frequency of PTG between groups who had experienced an MI and other chronic illnesses (Leung, *et al.*, 2010; Petrie, *et al.*, 1999). Two studies explored socio-demographic correlates with PTG (Norekvål *et al.*, 2008; Leung *et al.*, 2010). One study aimed to establish the effects of personality, psychological health and cognitive coping on PTG (Garnefski *et al.*, 2008). Another study aimed to examine the effect of perception of the event, social support and coping on PTG (Senol-Durak & Ayvasik, 2010). A final study explored the effects of perceived benefits (PTG) on the likelihood of experiencing another MI and on long term morbidity (Affleck *et al.*, 1987).

1.5.6.2 Design and Methodology

Within this systematic review the design and methodology was not specified as the number of studies available within this area is limited, therefore the inclusion criteria for design was kept broad. Of the studies found there was a dominance of quantitative designs with one study employing mixed methods (Norekvål *et al.*, 2008). Frequency analysis (Norekvål *et al.*, 2008), between group comparisons (Senol-Durak & Ayvasik, 2010; Laerum *et al.*, 1988) and in their follow up study (Laerum, *et al.*, 1991), between and within group comparisons (Leung *et al.*, 2010), within group comparisons (Petrie *et al.*, 1999), and correlation (Garnefski *et al.*, 2008; Affleck *et al.*, 1987; Senol-Durak & Ayvasik, 2010).

1.5.6.3 Sample

The number of participants in each of the studies reviewed ranged from 139 (Garnefski *et al.*, 2008) to 1268 (Leung *et al.*, 2010). All participants were recruited from hospitals or cardiac centres (both inpatient and outpatient). The studies were conducted in a wide variety of countries including: Norway (Laerum *et al.*, 1988; Laerum *et al.*, 1991; Norekvål *et al.*, 2008), Canada (Leung *et al.*, 2010), The Netherlands (Garnefski *et al.*, 2008), New Zealand (Petrie *et al.*, 1999), USA (Affleck *et al.*, 1987), and Turkey (Senol-Durak & Ayvasik, 2010).

1.5.6.4 Gender

Of the studies included in this review, the majority of samples were heavily weighted towards males. With just one being an all female sample due to the aim being to study an older female group (Norekvål *et al.*, 2008). Two studies had all male samples, yet it was not specified in their aims that they wanted to study only males (Laerum *et al.*, 1988; Laerum *et al.*, 1991). The gender imbalance in the studies that included both

males and females represents the increased prevalence of males experiencing MIs compared to females.

1.5.6.5 Age

The mean age of the samples within this review were 53.2 years old to 72 years old. However the higher end mean was from the Norekvål *et al.*, (2008) study which specifically researched older females; therefore this mean is skewed. The mean age of all of the MI samples was 60 years old.

1.5.6.6 Myocardial Infarction

The range of time post MI before the participant took part in the study ranged from seven weeks (Affleck, Tennen, & Croog, 1987) to eight years (Affleck, Tennen, & Croog, 1987; Laerum *et al.*, 1991). Two studies did not state the time elapsed between the participant's MI and their participation in the study (Garnefski *et al.*, 2008; Leung *et al.*, 2010). None of the studies provided information about the type of MI (either STEMI or NSTEMI) experienced by the sample.

Authors	Aim(s)	Participants	Methodology	Results	Conclusions
<p>T.M. Norekvål, P. Moons, B.R. Hanestad, J.E. Nordrehaug, T. Wentzel-Larsen & B. Fridlund (2008)</p> <p>Norway</p>	<p>1) To investigate whether older women perceive anything positive about their MI,</p> <p>2) To describe the socio-demographic and clinical characteristics of these patients,</p> <p>3) To explore the nature and frequency of such possible positive effects, if such were perceived.</p>	<p>-145 women returned the questionnaire</p> <p>-Average age 72 years (range 62–80 years)</p> <p>-Average time since MI was two years and five months.</p>	<p><u>Recruitment:</u></p> <p>Hospital database.</p> <p><u>Design:</u></p> <p>Mixed Methods.</p> <p><u>Data Collection:</u></p> <p>Postal surveys.</p> <p><u>Measure Used:</u></p> <p>-Single-item question “All in all, was there anything positive about experiencing an MI?” Instructed to answer “yes” or “no”. If responded “yes”, open-ended question to describe the positive effects they experienced.</p> <p>-disease severity from clinical notes.</p> <p><u>Data Analysis:</u></p> <p>Content Analysis, t-tests, Mann–Whitney U tests, and Chi-square tests.</p>	<p>-Four main themes: Appreciating Life, Getting Health Care, Making Lifestyle Changes, Taking More Care of Self and Others.</p> <p>-65% perceived 1 positive effect from their MI experience, 20% perceived 2 positive effects, and 13% perceived 3 positive effects.</p>	<p>-More women perceived beneficial effects from their MI than what has been reported in previous studies for male MI survivors.</p> <p>-Positive and negative outcomes are not mutually exclusive, and that health and dysfunction may coexist.</p> <p>-No differences between patients reporting positive effects and those that did not in relation to disease severity.</p>
<p>E. Laerum, N. Johnsen, P. Smith & S. Larsen (1988)</p> <p>Norway</p>	<p>To establish the frequency of positive effects in lifestyle and quality of life after an MI.</p>	<p>-84 men</p> <p>-mean age of 56.4 years (range 34-65)</p> <p>-12 to 21 weeks (mean 15.6) after the MI.</p>	<p><u>Recruitment:</u></p> <p>Health centre, Oslo.</p> <p><u>Design:</u></p> <p>Quantitative.</p> <p><u>Data Collection:</u></p> <p>Semi structured interview that lasted for 45 to 60 minutes which was rated.</p> <p><u>Measures Used:</u></p> <p>- Semi structured interview about changes in any direction about life-style, including</p>	<p>-No difference in demographics of group A (perceived life had changed for the better), Group B (no change), or Group C (life had changed for the worse).</p> <p>-Group A significantly more gratitude with life, value of friends, family, hobbies, health and physical activities than Group B. Group B significantly more of the above mentioned areas than Group A.</p> <p>-Most ‘psychiatric cases’</p>	<p>-The reorganisation and re-evaluation of quality of life should be used as part of rehabilitation alongside the negative consequences of a MI.</p>

			<p>smoking habits, alcohol consumption, physical exercise, stress on the job, fat and calorie intake, and drug consumption. Value of life itself, physical exercise, general health status, economy, hobbies, and family relationships.</p> <p>-General Health Questionnaire.</p> <p>-Severity of MI using Aspartate Aminotransferase.</p> <p><u>Data Analysis:</u></p> <p>Kruskal-Wallis test, Categorised data analysis.</p>	<p>according to GHQ in Group C then Group B and Group A respectively.</p>	
<p>E. Laerum, N. Johnsen, P. Smith & H. Arnesen (1991)</p> <p>Norway</p>	<p>To investigate whether changes in life-style and quality of life were still present two to four years after the MI.</p>	<p>-74 men</p> <p>-Average age 60 years old.</p>	<p><u>Recruitment:</u></p> <p>Health centre, Oslo.</p> <p><u>Design:</u></p> <p>Quantitative.</p> <p><u>Data Collection:</u></p> <p>Postal questionnaire.</p> <p><u>Measures Used:</u></p> <p>- Questionnaire about changes in any direction about life-style, including smoking habits, alcohol consumption, physical exercise, stress on the job, fat and calorie intake, and drug consumption. Value of life itself, physical exercise, general health status, economy, hobbies, and family relationships.</p> <p>-General Health Questionnaire</p> <p>-Cardiac function.</p> <p><u>Data Analysis:</u></p> <p>Chi squared.</p>	<p>-Change in response category was found in only three patients.</p> <p>-Significantly more patients reporting beneficial changes regarding smoking, intake of calories and alcohol consumption after 2-4 years</p> <p>- Feeling increased closeness to family diminished from 67% after 3-5 months to 31% after 24-51 months.</p> <p>-One-third of the patients perceived an improvement in their total life situation, same as before.</p>	<p>A slight reduction in the previously reported positive scoring of factors related to quality of life and family relationships. Positive changes concerning total life situation and life-style factors seem to persist or may even be improved.</p>

<p>Y.W. Leung, S. Gravely-Witte, A. Macpherson, J. Irvine, D.E. Stewart & S.L. Grace (2010)</p> <p>Canada</p>	<p>1) Explore PTG correlates in a large heterogeneous cardiac outpatient sample</p> <p>2) Understand how the degree of PTG compares with that of other chronically ill populations.</p>	<p>-1268 (353 female, 915 male) 28-104 years old (mean 66.2),</p> <p>-167 non white</p>	<p><u>Recruitment:</u></p> <p>Cardiac Outpatient databases</p> <p><u>Design:</u></p> <p>Quantitative</p> <p><u>Data Collection:</u></p> <p>Postal Survey.</p> <p><u>Measures Used:</u></p> <p>Post-traumatic Growth Inventory, 6 point Likert scale if a life change has occurred as a result of their cardiac condition, The Duke Activity Status Index, sociodemographics, Beck Depression Inventory-II, The ENRICHD Social Support Inventory, Illness Perception Questionnaire-Revised, Perceived Stress Scale, Physical Activity Scale for the Elderly</p> <p><u>Data Analysis:</u></p> <p>ANOVAs, chi-squared, Post-hoc Fisher's least significant difference tests, Bivariate analyses, Forward stepwise multivariate linear regression model, equivalence tests.</p>	<p>PTG significantly related to non-white ethnocultural background, lower family income, non-smoker/quitter, a lower level of physical functioning, lower depressive symptoms, greater social support, and illness perceptions.</p> <p>PTGI mean total score in the current sample was equivalent to that of patients with MI and or coronary artery bypass grafting from US and UK, survivors of various cancers, those with HIV/AIDS, but not equivalent to patients with breast cancer, end-stage liver cancer, cancer patients undergoing bone marrow transplant or with multiple sclerosis.</p>	<p>Certain cardiac patients, specifically those of South Asian and Black ethnocultural background, who are younger, with lower family income, poorer functional status, less depressive symptoms, greater social support, and more positive illness perceptions are more likely to experience PTG. Degree of PTG experienced by cardiac patients in this sample is equivalent to that reported by cardiac patients in other western countries and by patients with HIV/AIDS, but is generally lower than that experienced by breast cancer patients and those with MS.</p>
<p>N. Garnefski, V. Kraaij, M. J. Schroevers, G. A. Somsen (2008)</p> <p>The Netherlands</p>	<p>The relative contributions of personality, psychological health and cognitive coping to post-traumatic growth in patients with recent myocardial infarction.</p>	<p>-139 patients (114 males) ranging from 35 to 70 years (M = 56.39)</p> <p>between 3 and 12 months</p> <p>-75.4% married or lived together with a partner, 7.2% unmarried, 14.5% divorced, 1.4% widowed, and 1.4% not specified</p>	<p><u>Recruitment:</u></p> <p>Outpatient clinic of a teaching hospital.</p> <p><u>Design:</u></p> <p>Quantitative.</p> <p><u>Data Collection:</u></p> <p>Patients contacted by phone, completion of the 25 min questionnaire.</p> <p><u>Measures Used:</u></p> <p>Personal Growth Scale modified version of</p>	<p>Cognitive coping, personality and psychological health (listed in order of level of influence) have influence on growth. Positive correlations with positive well-being, extraversion, conscientiousness, putting into perspective, positive refocusing, positive reappraisal.</p>	<p>18% of variance of PTG explained by one's personality, expressed by neuroticism, extraversion and conscientiousness. 8% of variance of PTG explained by psychological health, expressed by positive wellbeing and depressive symptoms (inversely). 24% of variance explained by cognitive coping strategies expressed by three specific strategies: putting into perspective, positive</p>

			Post-traumatic Growth Inventory, Neuroticism Extraversion Openness-Five Factor Inventory, Hospital Anxiety and Depression Scale, Wellbeing Questionnaire, Cognitive Emotion Regulation Questionnaire <u>Data Analysis:</u> Structural Equation Modelling, using statistical modelling program EQS.		refocusing, and positive reappraisal
K.J. Petrie, D.L. Buick, J. Weinman & R.J. Booth (1999) New Zealand	To examine the types of positive changes reported the lives of MI and breast cancer patients.	<u>MI Group:</u> 124 men 21 women (104/ 73% responded to the question) <u>Breast Cancer Group:</u> 52 females (49/92% responded to the question) <u>MI Group:</u> Mean age 53.2 years <u>Breast Cancer Group:</u> Mean 48 years <u>MI Group:</u> - Europeans 127 (89%), 5 Maoris, 5 Pacific Islanders, and 4 patients from other race. -81% married or in a relationship <u>Breast Cancer Group:</u> -48 (92%) were of European	<u>Recruitment:</u> MI group: Patients admitted to two hospitals in Auckland Breast Cancer Group: Patients about to commence radiotherapy for primary breast cancer at an Auckland Hospital. <u>Design:</u> Qualitative. <u>Data Collection:</u> Written response to the open ended question <u>Question:</u> "What positive effects do you feel may have occurred in your life due to your heart attack/cancer?" <u>Data Analysis:</u> One-way analysis of variance, chi-square analyses and Pearson's correlation coefficient.	Themes: -Healthy lifestyle change, improved close relationships, greater appreciation of life and health, change in personal priorities, greater knowledge of health, feeling fortunate to be given a second chance, and improved empathy towards others. -MI patients more likely to report positive effects. -MI more often reported healthy lifestyle change, breast cancer patient's improvement in the quality of close relationships.	Development of a serious illness causes changes in personal views of the self (what is valued), quality of personal relationships and the way daily life is evaluated. Type of illness influences the type of positive consequence reported.

		<p>descent and 4 Maori.</p> <p>-75% married or in a relationship.</p> <p>-Both groups 3 months following diagnosis.</p>			
<p>G. Affleck, H. Tennen, & S. Croog (1987)</p> <p>USA</p>	<p>To establish:</p> <ul style="list-style-type: none"> -whether patients who attribute their MI to personal behaviours or who perceived benefits in their situation should be less likely to suffer another attack and should exhibit less long-term morbidity. -how the survival of a second attack affects individuals' cause and benefit appraisals. 	<p>345 participants; married 88.5%, single 11.5%</p>	<p><u>Recruitment:</u></p> <p>26 hospitals in eastern and central Massachusetts</p> <p><u>Design:</u></p> <p>Qualitative.</p> <p><u>Data Collection:</u></p> <p>Interviews at 7 week and 8 years post MI.</p> <p><u>Measures Used:</u></p> <p>Causal attributes scales,</p> <p>Question: do you see any possible benefits, gains or advantages in this experience?</p> <p>Prognostic severity of initial MI, health status/ morbidity at 8 years.</p> <p><u>Data Analysis:</u></p> <p>Correlation, themes, multiple regression.</p>	<p>-Themes: preventative health behaviours, lifestyle, change in life philosophy.</p> <p>-failure to perceive benefits at 7 weeks, tendency to blame others at 7 weeks associated with a higher incidence of reinfarction</p> <p>-tendency to attribute initial attack to stress and failure to perceive benefits after first attack predictive of greater morbidity at 8 years</p> <p>-experience of second attack associated with more attributions, greater attributions to personal behaviour, other people, stress responses, and heredity, and greater tendency to report benefits at 8 years.</p>	<p>Men who perceived benefits from a first MI were less likely to have a subsequent attack and exhibited less morbidity 8 years later. Blaming the initial attack on other people was associated with a higher incidence of reinfarction, and ascribing the initial attack to stress responses was predictive of greater morbidity.</p>
<p>E. Senol-Durak & H. B. Ayvasik (2010)</p> <p>Turkey</p>	<p>Examine the effect of perceived social support (PSS), Perception of the Event (PE) and coping on PTG</p>	<p>129 men (87.2%), and 19 women (12.8%). The mean age of the patients was 56 years (range 27–80).</p> <p>Time passed since diagnosis average (days) 1371.7 range 2–25920.</p>	<p><u>Recruitment:</u></p> <p>From 4 hospitals in Turkey.</p> <p><u>Design:</u></p> <p>Quantitative.</p> <p><u>Data Collection:</u></p> <p>Telephone or face to face application of</p>	<p>-PTGI was positively related with support from friends and significant others, emotion focused coping and problem focused coping.</p> <p>-Females had significantly higher scores on PTG than males.</p>	<p>-PSS was positively related to coping and PE</p> <p>-Social support was significantly related to coping</p> <p>-Significant effect of PE on PTG was not found. Patients continuously have a fear of having another attack and</p>

		<p>One MI attack 87.8% (130)</p> <p>Two MI attacks 8.8% (13)</p> <p>Three MI attacks 2.0% (3)</p> <p>Four MI attacks 1.4% (2).</p>	<p>measures.</p> <p><u>Measures Used:</u></p> <p>Posttraumatic Growth Inventory, Ways of Coping Questionnaire, Multidimensional Scale of Perceived Social Support and a Demographic Information Form.</p> <p><u>Data Analysis:</u></p> <p>Correlation, independent sample t-test, structural equation modelling.</p>	<p>-PSS was significantly related to both PE and coping</p>	<p>experience difficulties during the treatment of the disorder</p> <p>-Coping was positively related to PTG.</p>
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Table 2: Summary of all studies included in the systematic review

1.5.7 Quality Review of Relevant Studies

In order to establish the credibility of the studies included in this review, they were assessed against quality standards. The Critical Appraisal Skills Programme (CASP) provides critical appraisal tools to appraise qualitative, cohort, randomised controlled trial and systematic review research (CASP, 2010). The CASP critical appraisal check-lists have been designed through the evaluation of literature of critical appraisal frameworks by experts within the fields in which they are aimed at. The CASP critical appraisal check-list for qualitative research was applied to all eight studies as it was the most applicable checklist for all studies (both qualitative and quantitative). One question (question 2) was modified to be more inclusive of both qualitative and quantitative design and was changed to 'Is the methodology appropriate?' Also, question six was only applied to research that included qualitative methods. In order to ensure the scoring was not affected by this a score of 2 was given to quantitative research for this question. The full CASP checklist for qualitative research can be found in Appendix 1.

In order to compare the diverse research studies that were found to meet the criteria for review a system of scoring each of the criteria on a scale of 0 to 2 was employed. A score of 0 would indicate that the criteria was not fulfilled, a score of 1 would indicate that the criteria was either partially fulfilled or it was not clear if this was or was not fulfilled, and a score of 2 would indicate that the criteria was fulfilled completely. Although this is a reductionist method that strips away the finer details of the research, it does provide a useful framework upon which to compare the studies and assess their quality. Table 3 presents the breakdown of scores on each criteria of each study with a total quality score out of 20 at the end.

Research Paper	Was there a clear statement of the aims of the research?	Is the methodology appropriate?	Was the research design appropriate to address the aims of the research?	Was the recruitment strategy appropriate to the aims of the research?	Was the data collected in a way that addressed the research issue?	Has the relationship between researcher and participants been adequately considered?	Have ethical issues been taken into consideration?	Was the data analysis sufficiently rigorous?	Is there a clear statement of findings?	How valuable is the research?	Total Quality Score (out of 20)
Norekvål <i>et al.</i> (2008) Norway	Clear aim, with importance and relevance stated (2)	Aims were to explore perceptions and clinical characteristic of the sample (2)	Design reported and appropriate but not justified (1)	Selection explained but no explanation of appropriateness or discussions around recruitment (1)	Clear how data was collected, methods clear and form of data clear (2)	Not applicable to this study (2)	Ethics approval sanctioned and some discussion of issues such as consent (2)	Data analysis described, sufficient data presented (2)	Findings explicit, adequate discussion (2)	Findings considered in relation to relevant literature and identified how they can be used clinically (2)	18
Laerum <i>et al.</i> (1988) Norway	Clear aim but relevance and importance not thoroughly discussed (1)	Aims were to explore type and frequency in the sample (2)	Design reported and appropriate but not justified (1)	Recruitment strategy explained but not clear as to the appropriateness for knowledge sought (1)	Clear how data was collected, methods clear and form of data clear (2)	Relationship between researcher and participants not considered (0)	No details about ethics provided and no evidence of ethical approval being sought (0)	Data analysis described, sufficient data presented (2)	Findings stated and adequate discussion (2)	Findings considered in relation to relevant literature but no new areas of research or transfer of findings made (1)	12
Laerum <i>et al.</i> (1991) Norway	Clear aim but relevance and importance not thoroughly	Aims were to explore type and frequency in the sample over time (2)	Design reported and appropriate but not justified (1)	Recruitment strategy explained but not clear as to the appropriateness for	Clear how data was collected, methods clear and form of data clear (2)	Relationship between researcher and participants not considered	No details about ethics provided and no evidence of ethical approval being sought (0)	Data analysis described, sufficient data presented (2)	Findings stated and adequate discussion (2)	Findings considered in relation to relevant literature but no new areas of	12

	discussed (1)			knowledge sought (1)		(0)				research or transfer of findings made (1)	
Leung <i>et al.</i> (2010) Canada	Aims clear, relevance and importance clearly discussed (2)	Aim to establish correlates (2)	Design reported in another article (1)	Selection of participants explained, appropriate with discussion around recruitment (2)	Clear how data was collected and methods made explicit. Form of data also clear (2)	Not applicable to this study (2)	Ethical approval obtained but limited discussion of ethics included (1)	Data analysis described, sufficient data presented (2)	Findings stated and adequate discussion (2)	Findings discussed in relation to relevant literature and some new areas of research considered (2)	18
Garnefski <i>et al.</i> (2008) The Netherlands	Aims clear, relevant and importance clearly discussed (2)	Aim to establish relationship between multiple factors (2)	Design appropriate but justification not discussed (1)	Selection of participants explained, appropriate and with discussion around recruitment (2)	Data collection was justified and clear. Methods explicit (2)	Not applicable to study (2)	Ethical approval obtained but limited discussion of ethics included (1)	Data analysis described, sufficient data presented (2)	Findings stated and thorough discussion (2)	Findings discussed in relation to relevant literature and new areas of research also considered (2)	18
Petrie <i>et al.</i> (1999) New Zealand	Aims not clear but the importance of the study was clearly discussed (1)	Aim to examine types of change (2)	Design appropriate but not justified (1)	Selection of participants explained, appropriate and with discussion around recruitment (2)	Data collection was clear, justified and methods explicit (2)	Not applicable to study (2)	No discussion of ethics or reporting of ethical approval (0)	Description of the analysis process and sufficient data presented (2)	Findings stated and discussed (2)	Contribution of study discussed and consideration for clinical application given (2)	16
Affleck, Tennen, & Croog (1987) USA	Aims stated as hypothesis, importance and relevance	Aim to test hypothesis of causality (2)	Design appropriate but not justified (1)	Participant selection explained, with discussion about	Data collection justified, clear and methods explained (2)	Relationship between researcher and participants not	No discussion of ethics or reporting of ethical approval (0)	Description of the analysis process and sufficient data	Findings stated and discussed (2)	Discussion of contribution of study but no further research areas	14

	clearly stated (2)			recruitment (2)		considered (0)		presented (2)		identified or other ways to use the research (1)	
Senol-Durak & Ayvasik (2010) Turkey	Aims stated as hypothesis, importance and relevance clearly stated (2)	Aims to test hypothesis of relationships between factors (2)	Design appropriate but not justified (1)	Participant selection explained, with discussion about recruitment (2)	Data collection justified, clear and methods explained (2)	Not applicable to study (2)	Ethical approval obtained but limited discussion of ethics included (1)	Description of the analysis process and sufficient data presented (2)	Findings stated and discussed (2)	Findings considered in relation to relevant literature and identified how they can be used clinically (2)	18

Table 3: Scores for each study using the CASP Critical Appraisal Checklist (2010)

1.5.7.1 Narrative of Quality Review

Of the studies included in the systematic review, ratings of their quality ranged from 12 to 18 out of 20.

1.5.7.2 Aims, Method and Design

Most of the research included a clear aim; two were stated as hypothesis rather than aims. There was one that did not appear to have a clear aim (Petrie *et al.*, 1999), however they discuss the importance of the research. For all studies the methodology chosen by the researchers appeared to be appropriate considering their aims. For all of the studies, however, there was a lack of justifying the design they had chosen to employ with little or no rationale.

1.5.7.3 Ethics

In half of the studies reviewed there was no discussion of ethics or evidence that ethical approval was sought. For the remaining four studies there was evidence of ethical approval but limited or no discussion of ethics within the paper. Only one paper provided evidence of ethical approval and a discussion of ethics.

1.5.7.4 Recruitment, Data Collection and Data Analysis

Most of the studies provided clear discussion and information about recruitment of participants. However there were three studies in which there was description of recruitment but it was not clear if this was the best way to source the information they were looking to explore. All studies provided detailed information about data collection.

For all studies included in the review there was sufficient description of the analysis process and sufficient data presented.

1.5.7.5 Reflexivity

For five of the studies included in the review reflexivity was not applicable as there was little or no contact with the participants. For the remaining studies that employed qualitative methods and designs, such as semi-structured interviews, there was no discussion of the relationship with the participant.

1.5.7.6 Findings and Value of the Research

Each study stated their findings clearly. For the majority of the studies findings were discussed in relation to other literature, new areas of research and clinical applications of the findings. However there were some studies that only discussed the findings in relation to other literature and did not consider them beyond this.

Despite some of the limitations stated above, the studies included in the systematic review are of a good to high quality. What follows is a synthesis of the systematic review studies.

1.5.8 Synthesis of Systematic Review Studies

The following synthesis combines the results and conclusions obtained from the eight articles included in the systematic review of research exploring PTG following an MI. They fall broadly into the categories of areas, frequency, factors and effects of PTG.

1.5.8.1 Areas of Posttraumatic Growth

One of the earliest studies of PTG in people who had experienced an MI was conducted by Affleck *et al.* in 1987. Using a longitudinal design participants were interviewed 7 weeks following their MI and again at 8 years. They asked participants the following question '*Do you see any possible benefits, gains or advantages in this experience?*' From the responses they received they identified the following themes: preventative health behaviours, lifestyle, and change in life philosophy.

Similar themes were also found in Laerum *et al.* (1988) initial and follow up study (Laerum *et al.*, 1991). Both studies used a semi-structured interview about changes in any direction in areas such as: life-style, value of life itself, general health status, economy, hobbies, and family relationships. Laerum *et al.* (1988) found that those who perceived life had changed for the better were more grateful, appreciated the value of friends, hobbies, health and physical activities. In their follow up study Laerum *et al.* (1991) found that significantly more patients were reporting beneficial changes regarding smoking, intake of calories and alcohol consumption after two to four years. However, feeling increased closeness to family diminished from 67% after three to five months, and to 31% after 24-51 months. Given that Laerum *et al.*'s (1988) study interviewed participants on average 15.6 weeks following their MI it is possible that this reduction in closeness could be explained by families initially taking care of and supporting the participant, but that this reduced over the months when the participant began to recover and family returned to their previous closeness.

Petrie *et al.* (1999) asked patients 3 months post diagnoses of either an MI or breast cancer '*What positive effects do you feel may have occurred in your life due to your heart attack/cancer?*' Responses from both groups revealed themes of healthy lifestyle change, improved close relationships, greater appreciation of life and health, and change in personal priorities. This study revealed three additional themes that had not been identified by previous studies (Affleck *et al.*, 1987; Laerum *et al.*, 1988; Laerum *et al.*,

1991), which were: greater knowledge of health, feeling fortunate to be given a second chance, and improved empathy towards others. As both this study and Affleck *et al.* (1987) used an open ended question the difference between the themes could be explained by the interpretation and it is possible that the themes identified in one are subsumed by those in another.

More recently, Norekvål *et al.* (2008) asked a single question through a postal survey: 'All in all, was there anything positive about experiencing an MI?' Similar themes to previous studies were found with four main themes identified: appreciating life, getting health care, making lifestyle changes and taking more care of self and others. In contrast to Laerum *et al.*, 1988; 1991) who grouped people according to perceptions that life had changed for the better, same or worse, Norekvål *et al.* concluded that positive and negative outcomes are not mutually exclusive and can co-exist. This raises the question as to whether PTG is a status that exists by itself without the existence of posttraumatic stress. Co-existence of PTG and posttraumatic stress is a position advocated by Tedeschi and Calhoun (2006).

It is clear from the studies discussed that experiencing an MI can result in positive changes/ changes for the better, broadly, in the following areas of a person's life: lifestyle, relationships and life philosophy. Having established that these are the areas of PTG that people identify following an MI, how often do those who have had an MI experience PTG?

1.5.8.2 Frequency of Posttraumatic Growth

Laerum *et al.*'s (1988, 1991) studies found that one-third of the participants perceived a positive change in their total life situation. This proportion of PTG was found both in the original study and at follow up. However, even those who overall perceived their total life situation had remained the same or had become worse may have had aspects of

their life that had, in fact, improved or changed for the better. This is potentially corroborated by Norekvål *et al.* (2008) where 65% of participants perceived one positive effect from their MI experience, 20% perceived two positive effects, and 13% perceived three positive effects. Therefore suggesting that most people who experience an MI perceive at least one positive effect or change for the better as a result.

1.5.8.3 Myocardial Infarction Compared to Other Chronic Conditions

When comparing patients who experienced an MI to those diagnosed with breast cancer Petrie *et al.* (1999) found that MI patients were more likely to report positive effects of their condition. They also found MI participants more often reported healthy lifestyle changes, whereas breast cancer participants reported improvement in the quality of close relationships. They therefore concluded that the type of illness influences the type of positive consequence reported. This could, in part, be explained by the post diagnosis treatments and interventions in which MI patients are actively encouraged to engage in physical activity, healthier lifestyle etc. therefore encouraging self-efficacy. For those diagnosed with breast cancer there is a greater reliance on medical interventions to improve the condition with, potentially, a greater emphasis on relational support to get through treatment and into recovery. In addition, Petrie *et al.*'s (1999) MI sample was predominantly male, whereas the breast cancer sample were all female. It is possible that a gender difference in the way in which people cope with and report experiences of being diagnosed with these conditions may also have influenced the results. Thus revealing a dominance in health lifestyle changes and relational support based on the demographics of the sample.

In a more recent study, Leung *et al.* (2010) participants who had experienced an MI had an equivalent mean score on the PTGI to patients with MI and or coronary artery bypass grafting from US and UK, survivors of different cancers, and those with HIV/AIDS. However, in contrast to Petrie *et al.* (1999), their mean score was lower than patients with breast cancer, end-stage liver cancer, cancer patients undergoing bone marrow

transplant or patients with multiple sclerosis. Explanations for these differences between MI patients and those with other chronic conditions are unclear. Indeed a number of factors such as degree of threat to life, severity of condition, level of perceived control over the condition and illness prognosis/ recovery may all feature. This is clearly an area for future research.

1.5.8.4 Correlational Factors and Posttraumatic Growth

Coping

Within the studies included in the systematic review, coping appears to be one of the key factors related to PTG. Garnefski *et al.* (2008) explored the relative effect of personality, cognitive coping and psychological health on PTG. Cognitive coping, personality and psychological health (listed in order of level of influence) were found to have varying degrees of influence on growth. Twenty four percent of variance was explained by cognitive coping strategies, particularly in relation to three strategies: putting into perspective, positive refocusing, and positive reappraisal. Senol-Durak and Ayvasik (2010) researched the effect of perceived social support (PSS), Perception of the Event (PE) and coping on PTG. They found that coping was positively related to PTG; specifically emotion focused coping and problem focused coping. When considering Garnefski *et al.* (2008) and Senol-Durak and Ayvasik (2010) studies it becomes apparent that coping, in the broadest sense of the term, is a significant factor in PTG. It would appear that there are many ways of coping with an MI that would become a factor in experiencing PTG. Though which way of coping with an MI that would be related to the greatest degree of PTG is unclear, and is a potential area for future research.

Personality

Garnefski *et al.* (2008) found that eighteen percent of variance of PTG within their research was explained by personality, particularly neuroticism, extroversion and conscientiousness. They found positive correlations between PTG and extroversion; and conscientiousness. Though this was the only study within the systematic review to

include personality, the results found by Garnefski *et al.* (2008) for people who have had an MI are in line with other research that has also concluded that extroversion and conscientiousness are personality traits that are correlated with PTG (Linley & Joseph, 2004).

Social Support

Both Senol-Durak and Ayvasik (2010) and Leung *et al.* (2010) found that those who had experienced an MI who perceived they had greater social support were more likely to score higher on PTG measures. Again this is consistent with research with other cohorts (who have experienced a trauma other than an MI) where social support is positively correlated with PTG (Barskova & Oesterreich, 2009).

Illness Perceptions and Disease Severity

Of the studies included in the systematic review only one considered the effect of illness perceptions (Leung *et al.*, 2010). They found that PTG, in participants who had experienced an MI, was significantly related to positive illness perceptions. Interestingly, Norekvål *et al.* (2008) found no differences between patients reporting positive effects and those that did not in relation to disease severity. Leung *et al.* (2010) and Norekvål *et al.* (2008) research would therefore suggest that it is not the medical definition of severity of the MI that impacts on PTG but the person's perception of it.

Demographic Factors

Demographic factors such as ethnicity and social-economic status were also researched by Leung *et al.* (2010). Those from non-white ethnocultural backgrounds were more likely to report PTG than those from white backgrounds. Equally, PTG was significantly related to lower family income participants who had experienced an MI.

Smoking

Only one study within this systematic review explored the impact of smoking as a factor affecting PTG (Leung *et al.*, 2010). They found that PTG was significantly related to those who were within the non-smoker/quitter category of those who had experienced a cardiac event. However, the sample those who had experienced an MI, coronary artery bypass graft surgery, or congestive heart failure. It is therefore not possible to say that those within the MI category were significantly more likely to be related to PTG if they were non-smokers or quitters. In addition, Leung *et al.* (2010) did not state how long the 'quitters' had quit smoking for. It is therefore unclear whether the length of time a person had quit for had an impact of the relationship with PTG.

These studies suggest there are a number of dynamic and static factors that may influence whether a person who has sustained an MI is able to experience growth derived from that situation.

1.5.8.5 Effects of Posttraumatic Growth on Reinfarction and Morbidity

Affleck *et al.* (1987) is the only study within the systematic review that explored the effects of PTG on further MIs and morbidity. Their research revealed that a failure to perceive benefits at seven weeks, and a tendency to blame others at seven weeks was associated with a higher incidence of reinfarction. Equally, a tendency to attribute their initial MI to stress, and failure to perceive gains following their first MI predicted greater morbidity at eight years post MI. The experience of a second MI was associated with more attributions; specifically attributing it to personal behaviour, other people, stress responses, and heredity. Yet those who had survived a second MI had a greater tendency to report benefits at 8 years. Therefore this research suggests that perceiving benefits and not externalising blame within the early stages following an MI is less likely to result in reinfarction/ morbidity.

1.5.9 Summary of Systematic Review and Implications for Future Research

Overall the systematic review established that experiencing an MI can result in positive changes in the following areas of a person's life: lifestyle, relationships and life philosophy. What becomes apparent about these broad categories is that they map on to only four of the five areas of Tedeschi and Calhoun's (1996) model of PTG. The one that appears to be missing from the research in this review of people who have experienced an MI is improved personal strength. The research in which these themes were generated used a single open-ended question with which to gather their PTG themes. It may, therefore, warrant more direct open-ended questions to explore whether this area of growth is something that truly does not feature significantly following an MI or whether it is something that was not reflected upon because the other areas featured so heavily. There is also a growing body of literature that suggests PTG may be an illusion in which growth is seen as the:

"...assimilation of the traumatic experience, which does not bring about changes in personal identity, but rather involves a distortion of the self-enhancing appraisal, which serves to compensate or defend the subject from the distress produced by the questioning to which they subject their identity during diagnosis and treatment of the illness"

(Sumalla, Ochoa & Blanco, 2009; Page 28).

Aspinwall and Tedeschi (2010) have strongly refuted such claims and criticisms; arguing against each tenet from those who consider PTG as an illusion. They also reaffirm their position that both positive and negative consequences of trauma exist but they have focussed on the positive as this is a relatively new and under researched area.

Research also suggested that most patients who had experienced an MI would identify positive change in one domain of their life. However, more generalised PTG was more limited, and occurred in approximately one third of participants in Laerum *et al.*'s (1988, 1991) studies. Comparing PTG in MI patients to those with other chronic illnesses was less clear. Results varied from MI patients recognising more growth than other

conditions and vice versa. What was evident was that there is a different emphasis on the areas of growth highlighted by those who have had an MI and other chronic conditions. There are clearly a number of static and dynamic factors that could affect PTG in chronic illnesses including MIs.

From the research evaluated in this systematic review there were a range of factors explored in relation to the degree of increasing or decreasing PTG. Those that were positively correlated with PTG were coping strategies, extroversion and conscientiousness, social support, illness perceptions, non-white ethnocultural backgrounds, lower family income, and non-smoker/ quitter. Within those that concluded coping strategies were important factors in developing PTG it would be interesting to know which, if any, of the coping strategies results in the greatest level of PTG? If there is a strategy that promotes PTG better than others, it raises the question of whether this could be incorporated as part of a cardiac rehabilitation programme to improve growth following an MI? When considering support following an MI it would also be interesting to explore what impact the support from cardiac services has on PTG, and how important patients consider this support to be when considering growth following an MI. Such research could potentially shape the support offered by services to patients following an MI to best facilitate PTG.

The systematic review also revealed that perceiving benefits and not externalising blame within the early stages following an MI, is less likely to result in re-infarction/ morbidity (Affleck, Tennen & Croog, 1987). However, this is a study that does not appear to have been replicated and was conducted 27 years ago. Further clarity about impact of PTG on re-infarction and morbidity would potentially have a wide impact and would raise questions such as: should facilitating PTG be the focus of cardiac rehabilitation for long term reduction in re-infarction and morbidity?

1.6 Gaps in the Research

Reflecting on the research synthesised in the systematic review there are clear gaps and areas of potential research in the area of PTG in MI patients.

1. All of the studies included in this review were conducted in countries other than the UK. This raises the question of how applicable these results are to the UK population of those who experience an MI? There is clearly a need to conduct research about PTG following an MI that is based within the UK.
2. Recent changes in cardiac research and care means that those who experience a STEMI type of MI receive different initial care to those diagnosed with a N-STEMI MI (NICE Pathways, 2013). Essentially, those diagnosed with a STEMI will be assessed and if eligible be offered coronary occlusion therapy to open the blocked arteries. The most effective is an operation called an angioplasty (British Heart Foundation, 2014). Does this difference in events, where one group is admitted to have an operation within a short time of being diagnosed and the other monitored, affect PTG? Literature suggests that the perceived threat to life is related to PTG (Linley & Joseph, 2004).
3. There are also many subgroups of people within those who experience an MI, one of which has been mentioned above, however there are many others. Some of these subgroups include those with different lifestyles before the MI (e.g. those who are obese, smoke, drink excessive amounts of alcohol, have high cholesterol), males and females, age differences; and marital/ relationship status. These are all factors that are either implicated in the risk of having an MI or in post-MI PTG or distress. The literature provides evidence that the risk of having an MI is associated with specific risk factors (e.g. smoking, obesity, high cholesterol) but PTG is experienced by MI survivors. Having had an MI and survived do survivors have a different risk profile for a second MI? What is the relationship between the risk factors to PTG or distress in those who survive an MI? Do survivors of an MI within these different risk-related sub-groups experience PTG differently? If so, what implications would this have on preventative and palliative care and interventions?

4. Lastly, there is a clear bias towards quantitative research within this area, with only one qualitative study being identified as meeting the criteria for this review. The quantitative studies have revealed information about PTG themes, frequency, correlational factors and impact on risk of reinfarction and morbidity. What is missing are accounts of the lived experience of those who survive an MI and studies of the extent to which this experience is characterised by PTG or its subcomponents.

1.7 Conclusions

To date, there are a limited number of studies that have explored PTG following an MI. A total of eight studies were included in the systematic review of which the majority employed a quantitative methodology. These studies were summarised, their quality reviewed and the findings were synthesised. Following this, there appeared to be a number of gaps and areas of potential research in the area of PTG in MI patients. There was also a distinct lack of research in this area conducted within the UK. It is therefore recommended that further research explores the experiences of subgroups (based on risk factors) of people who have survived an MI.

1.8 Current Research

1.8.1 Rationale

The rationale for the current research comes from having established that there are limited studies that explore the experience of PTG in survivors of MI. More specifically, there is a lack of research that explores the experience of PTG in subgroups of survivors of MI (particularly risk factors for MI).

With the decline in mortality following a first MI and with the experience of such a health event often being perceived as life threatening and traumatic, there is a growing need to understand the experience following an MI to aid a person's recovery. In the past this has generally focused on the negative aspects of life following an MI, but more recently attention has also turned to the positive developments that occur, namely PTG. Although research about PTG with people who survive an MI is limited, there is evidence that people grow as a result of their MI in at least one area of their life. However, research that specifically explores the experience of PTG following an MI is lacking. Such understanding of how PTG is articulated and perceived by those who have had an MI would provide a broader understanding of their experience post MI that could give greater understanding to professionals and carers and inform aftercare, particularly in relation to cardiac rehabilitation.

To date, there are no studies that explore PTG in subgroups of MI survivors based on risk factors such as smoking. The rationale for exploring PTG with people who were smokers or who had smoked until relatively recently before their MI is exploring the psychological process of PTG and the content of PTG in the face of engaging in a lifestyle choice that is known to be a significant risk factor for an MI. Those who made the lifestyle choice to smoke would have been subject to multiple warnings about the link between smoking and MI for the duration of their smoking history. The study looked at positive growth

after MI in the face of having engaged in a lifestyle which is known to put a person at risk of MI. If a person smoked then it is hypothesised that it will impact on their potential for PTG because, psychologically independent of whether they quit recently or were continuing smoking, they were all aware of the link between smoking and MI risk. The event which was predicted has happened. Do these participants still show evidence of PTG despite knowingly engaging in a behaviour which put them at risk?

Other studies within the literature have shown that people disclose PTG after an MI, but is PTG also present in those who were repeatedly told on cigarette packets that they were at risk of an MI then had an MI and survived? What is most important then for this study is not so much whether they had quit smoking in the recent months before their MI, but their smoking history. The key question is whether psychologically people who knew they were at risk of an MI because they smoked and then had an MI then demonstrate PTG having survived an MI? It is hypothesised that having recruited this group of people and examined their PTG that they will show stronger evidence of PTG because they survived. Therefore they may now value life after MI differently and view smoking differently as part of that PTG process.

In addition, there is a lack of research within the UK that explores PTG following an MI. The author therefore argues that qualitative research from within the UK is needed to explore the experience of PTG following the survival of a first MI in those who were smokers at the time of their MI, or were smoking in recent years before their MI.

1.8.2 Aims of the Current Research

The aim of this research was to explore the experience of PTG in people who have had an MI and were smokers at the time of, or recently before, their MI. The research was focused on the participant's life following their MI therefore the aim was to explore relationships, recovery, view of the world, values and the future. These experiences will be used to develop a psychological understanding of PTG following an MI in those who

were smoking at the time of their MI. The secondary aim of this research was to explore the psychological process of PTG following an MI within this sample. A qualitative methodology was considered to be the most suitable given that the aims of this research were to explore a person's experience of a phenomenon and the psychological processes underpinning them. Using Interpretative Phenomenological Analysis (IPA), themes will be derived from the data from semi-structured interviews.

It is anticipated that the results of this study will have implications for cardiac rehabilitation staff and services in their understanding of the experience of an MI, particularly for those who were smokers at the time. To aid this understanding and potentially influence the cardiac rehabilitation programme offered to patients following an MI, this study will also aim to explore the psychological process of PTG following an MI. Therefore exploring both the 'what' and 'how' of PTG following an MI.

2. CHAPTER TWO: METHODOLOGY

2.1 Overview

The following section is concerned with the methodology of this study and will discuss what qualitative methodology is and why it was chosen for this study, what IPA is, its limitations and why it was chosen for this study. Issues of clinical governance and ethics will then be considered before describing the design of the study in relation to sample size, participants, interview question generation, and procedure.

2.2 Qualitative Methodology

Elliott *et al.* (1999) define the aim of qualitative research as:

"...to understand and represent the experiences and actions of people as they encounter, engage, and live through situations."

(Elliot *et al.*, 1999; Page 216).

Essentially, qualitative researchers are exploring the meaning of an event or phenomena as perceived by the person experiencing it. This is in contrast to quantitative methods that are positivist in their approach, looking for cause and effect rather than the experience and the meaning. It is the interpretation of events, rather than the prediction of outcomes, that is one of the defining qualities of qualitative methodology (Willig, 2001). Therefore research questions that lend themselves to qualitative studies look to question the process.

Another defining characteristic of qualitative research is its emphasis on reflexivity. This, according to Willig (2001), requires:

"..an awareness of the researcher's contribution to the construction of meanings throughout the research process, and an acknowledgement of the impossibility of remaining 'outside of' one's subject matter while conducting research."

(Willig, 2001; Page 10).

Within reflexivity there are two areas to be explored: personal and epistemological. Personal reflexivity involves reflecting on areas such as personal experiences, values, judgements, beliefs and political views that may be influencing the research. Epistemological reflexivity reflects on the assumptions a researcher has of the phenomena in question both before the research and during the process of the research that may have influenced the research and its results.

Qualitative methods are therefore concerned with the experience and the meaning people attribute to that experience. This results in a unique and subjective perspective on an event or series of events. Unlike quantitative approaches, they do not seek to achieve a universal 'truth' but an understanding based on personal, interpersonal and social construction of the meaning of an experience. This, in addition, is within the social and interpersonal context of the teller and the hearer of the story (Murray & Chamberlain, 1999).

2.3 Rationale for Using Qualitative Methodology

It has been argued that within health psychology there has been a strong emphasis on quantitative research due to its convergence with the medical model (Murray & Chamberlain, 1999), with the lack of awareness of epistemologies such as social construction and questions about cause and effect and the influence of variables rather than questions about meaning and process. This is reflected in the systematic review that the researcher conducted in which the majority of the studies that researched MI and PTG were quantitative in method. One of the areas of future research that clearly came from that systematic review were studies that explored meaning of experience of

PTG following an MI. It would therefore follow that a qualitative method would be used for this study as the researcher was interested in the experiences of PTG within a particular group of individuals (those who had experienced an MI). The researcher was not aiming for a cause and effect outcome which explored variables but an understanding of the experience based on the participant's perspective, whilst also being mindful of her own assumptions and biases.

The next section will discuss the theoretical background to and rationale for the use of a specific qualitative method: IPA.

2.4 What is Interpretative Phenomenological Analysis?

IPA is a qualitative research approach, it is not considered to be a rigid method as will become apparent through the core philosophies that underpin it. IPA is particularly interested in exploring a person's experience when this becomes significant or takes on a certain meaning for them. This usually occurs when something happens in a person's life (this could be a positive or a negative event or change). The focus of IPA is not on the event itself but on the process of reflection, thinking and feelings that a person goes through when this happens (Smith, Flowers & Larkin, 2009). IPA is grounded in three core philosophies: Phenomenology, Hermeneutics and Idiography.

2.4.1 Phenomenology

Interpretative Phenomenological Analysis (IPA) has its origins in the philosophical theory of phenomenology. This has been defined briefly as "*...being concerned with the ways which human beings gain knowledge of the world around them*" (Willig, 2001; Page 50). More specifically, the branch of transcendental phenomenology is curious about a person's experience but within a certain context or time. How that experience is then

perceived depends on the perceiver's context, judgements, emotions etc. This is known as their intentionality (Willig, 2001).

The phenomenological method to gaining understanding begins by setting aside personal judgements and assumptions in order to fully engage with what is evident. The 'what' of the phenomenon is explored in as much detail and description is available in the conscious. The 'how' of the phenomenon is then explored to elaborate the contextual factors that made the phenomenon come to be and be experienced as it is. The 'what' and the 'how' are then integrated to form a singular understanding of the phenomenon (Willig, 2001).

It is widely acknowledged that setting aside all personal judgements and assumptions, as suggested by the phenomenological method, is not entirely possible. IPA therefore is a particular type of phenomenological method that accepts this and recognises that it is not possible to directly experience what a participant has experienced (Smith, 1997). Instead, it embraces the participant's experience, the researcher's view of this experience and the interaction between the participant and the researcher. Ultimately, the phenomenological analysis that is the end product of the research is the researcher's interpretation of the participant's phenomenon.

2.4.2 Hermeneutics

Hermeneutics is concerned with interpretation. Interpretation is coupled with phenomenology in IPA in that the researcher facilitates and makes sense of the phenomena that appears in the participant's text. The interpretation comes from engaging what the researcher already knows (i.e. psychological theory and an understanding of the wider text) with what is presented (i.e. the text itself). This is enabled by the process of 'The Hermeneutic Cycle' in which there is a dynamic relationship between a part and a whole. For example, the meaning of a word can be

understood when seen embedded in a sentence. Equally, the meaning of the sentence can only be understood by understanding its parts. IPA therefore involves a cyclical process of understanding the symbiotic relationship between the part and the whole (Smith, Flowers & Larkin, 2009).

2.4.3 Idiography

Idiography is concerned with the specific, and attempts to understand the meaning of unique phenomena from a subjective position. This is in contrast with research that has typified psychology in the past in which there has been a tendency to explore objective phenomena in order to generalise to groups or populations (Smith, Flowers & Larkin, 2009). Idiography within IPA occurs in two forms. IPA focuses on the specific and particular within the level of detail it examines through analysis. It also looks to understand the meaning of a particular phenomenon with certain people within a specific context. This is the reason why specific and typically small samples are used within IPA research. Subsequently IPA does not offer generalisations to wide groups or populations but instead presents them within specific people, within a certain context who have experienced a particular phenomenon.

2.5 Limitations of Interpretative Phenomenological Analysis

Willig's (2001) chapter on IPA discusses what it is, how to use it and write it up concluding with some of the potential limitations of IPA. She considers the limitations of IPA in three areas: the function of language, appropriateness of descriptions of experience, and account versus description.

2.5.1 The Function of Language

Through semi-structured interviews, diaries and other forms of written accounts of a person's experience, IPA collects its data. Through analysing the text of these accounts the researcher engages with that person's experience. So the person's account of their experience is conveyed through language and the words they use. Willig (2001) argues that:

"...language constructs, rather than describes, reality. That is, the words we choose to describe a particular experience always construct a particular version of that experience."

(Willig, 2001; Page 63).

Therefore she argues that the words used convey a particular version of an experience are dependent upon the context in which it is being described. Willig therefore questions whether the researcher can ever get a true sense of a person's experience since the language and words they use to construct that account can tell them about how they talk about it rather than how it was experienced. Willig then goes a step further to consider whether language, in fact, comes before the experience. So in the telling of an account with certain language how the phenomenon was experienced is imposed by the language used.

2.5.2 Appropriateness of Descriptions of Experience

IPA relies on the rich texture of experiences conveyed by the participant to the researcher which in turn is used to gain an understanding of that experience. However, Willig (2001) questions whether a participant's account can provide enough detail and richness for the researcher to be able to interpret what has been said and truly gain an understanding of their experience. This, she argues, is especially important for those who are unable to use language as a way of describing how they were feeling, what they were thinking and how they were behaving in a way that truly captures their experience.

Willig argues that being reliant on this level of language expression in order to capture a person's experience limits its appropriateness with some people.

2.5.3 Account versus Description

IPA is interested in the experience of a person in that it is their perception of the world. So the world and the person are not seen separately but together in that they have a relationship with each other, and it is this relationship (i.e. the experience) that interests the researcher. Willig (2001) argues that the phenomenological researcher therefore focuses on the how and not the why, subsequently negating any explanation as to why the events took place and why one person's experience of it can be so different to another's. She argues that a person's experiences are researched in a vacuum where past histories and social structures which shape our lives are not considered thereby missing the opportunity to explain why a person has experienced the phenomenon as they have.

2.6 Why Choose Interpretative Phenomenological Analysis Over Other Qualitative Methods?

Within qualitative psychology there exist many methodologies including, but not limited to: grounded theory, discourse analysis, IPA, and case studies (Willig, 2001). In health psychology research IPA, discourse analysis and grounded theory are three of the most commonly used qualitative approaches (Starks & Trinidad, 2007). Within their paper, Starks and Trinidad (2007) provide an overview of the similarities and differences between these three approaches (see Figure 3 below).

Two of the key influences in determining which qualitative method to use are the research question and the anticipated end product of the study. The latter will dictate

the research question and subsequently the method that should be employed. So considering Figure 3, if a researcher wanted to produce a theory based on a particular group of participants' experience they would explore *"how social structures and processes influence how things are accomplished through a given set of social interactions."*

(Starks & Trinidad, 2007; Page 1374).

However, in the case of this research the researcher explored the current literature of PTG following an MI and found that models of PTG (not specifically in relation to MI) already exist and have well established researched evidence to support them. What appeared to be missing from the current literature was an understanding of a person's experience of PTG following their first MI. Therefore, if we refer to Figure 3 again, if having an understanding of the lived experience is the goal of the research this would lend itself to:

"...ask questions about lived experiences, as contrasted with abstract interpretations of experience or opinions about them..."

(Starks & Trinidad, 2007; Page 1374).

Ultimately leading to the use of the IPA approach to inform, structure, and underpin this research.

	Phenomenology	Discourse Analysis	Grounded Theory
HISTORY	European Philosophy	Linguistics/Semiotics	Sociology
PHILOSOPHY	There exists an essential, perceived reality with common features	Knowledge and meaning is produced through interaction with multiple discourses	Theory is discovered by examining concepts grounded in the data
GOAL	Describe the meaning of the lived experience of a phenomenon	Understand how people use language to create and enact identities and activities	Develop an explanatory theory of basic social processes
METHODOLOGY Formulating a research question	"What is the lived experience of [<u>the phenomenon of interest</u>]?"	"What discourses are used and how do they shape identities, activities, and relationships?"	"How does the basic social process of [<u>X</u>] happen in the context of [<u>Y environment</u>]?"
Sampling	Those who have experienced the phenomenon of interest	Those situated in one or more of the discourses of interest	Those who have experienced the phenomenon under different conditions
Data Collection: Observations	Observe participants in the context where the phenomenon is experienced	Observe participants in conversation in their natural environment	Observe participants where the basic social process takes place
Interviewing strategy	Participant describes experience; interviewer probes for detail, clarity	Both engage in dialogue; interviewer probes for intertextual meaning	Participant describes experience; interviewer probes for detail, clarity
ANALYTIC METHODS Decontextualization & Recontextualization: Process of coding, sorting, identifying themes and relationships, and drawing conclusions	Identify descriptions of the phenomenon; cluster into discrete categories; taken together, these describe the "essence" or core commonality and structure of the experience	Examine how understanding is produced through a close look at the words. Interested in <i>how</i> the story is told, what identities, activities, relationships, and shared meaning are created through language	Open, axial, & selective coding: Examine concepts across their properties & dimensions; develop an explanatory framework that integrates the concepts into a core category
Role of Analyst's Views	Bracket views	Examine own place in the discourse(s)	Bracket views
AUDIENCE	Clinicians, practitioners & others who need to understand the lived experience of the phenomenon of interest	Policy makers & interventionists who need to understand the discourses in use to craft effective messages	Researchers & practitioners who seek explanatory models upon which to design interventions
PRODUCT	A thematic description of the pre-given "essences" and structures of lived experiences	Description of language-in-use; identify how different discourses shape how identities, relationships, and social goods are negotiated and produced	Generate theory from the range of the participants' experience

Figure 3: Similarities and differences between IPA, discourse analysis and grounded theory

(Taken from Starks & Trinidad, 2007; Page 1373).

2.7 Rationale for Using Interpretative Phenomenological Analysis

This study explored the phenomenon of post event growth experienced by a person who has had an MI and was a smoker at the time or proximal to it. To simply identify those who have had this experience without exploring this in a more detailed and descriptive way would render the event meaningless. For example to simply quantify how many people experience PTG following an MI who were smokers at the time will tell us how many there are but will tell us nothing of what the people experienced and the meaning they attributed to the event. The researcher was interested in the person's experience following the MI. She was interested in hearing the experience of this phenomenon in which the participant's intrapersonal and interpersonal experience following the MI becomes apparent and enriched with the meaning the participant attributes to it.

However she was also aware that she designed and conducted this research with her own epistemological and personal assumptions. IPA offered the framework to become aware of these assumptions (through bracketing interviews and reflexivity), and through awareness to endeavour to stay as true to the meanings of the participants as possible. IPA, therefore, provided a philosophy and method for the foundations to this study, as its focus is on the person's experience and the meaning they attributed to it whilst remaining aware of the researcher's interpretations and the interpersonal nature of the interview. As Smith (1997) defined it, IPA is "*...an attempt to unravel things contained in...accounts through a process of interpretative engagement with the texts and transcripts*" (Smith, 1997; Page 54).

2.8 Ensuring Quality with Interpretative Phenomenological Analysis

The foundations of the IPA method rely on the interpretation of data by the researcher. Therefore, another researcher interpreting the same data may not come to the same conclusions as the original researcher. This brings into question the reliability and

validity of this method (Smith, Flowers & Larkin, 2009). In order to ensure quality with IPA, and other qualitative methods, guidelines have been developed such as those proposed by Yardley (2000). For the purposes of this study Smith *et al.*'s guidelines have been used to ensure the quality of the research as they appear to present a comprehensive set of guidelines. The guidelines proposed by Smith *et al.* can be found in Table 4 below.

1. Owning one's perspective	The researcher provides an account of their assumptions and theoretical orientations both before and during the study so that the reader is able to establish the influence that they have on the interpretation of the transcripts.
2. Situating the sample	The researcher describes any relevant life or demographic information about the participants so that the reader can decide if these have a bearing on the outcomes.
3. Grounding in examples	The researcher should provide examples that show the analysis process and the understanding that was developed as a result of the analysis. This will aid the reader's judgements of whether the data fit the understanding and gives the reader the opportunity to consider other meanings from the data.
4. Providing credibility checks	Using credibility checks to check interpretations, analysis and themes. An example of such checks would be to ask the participants to review areas such as themes to see if they resonate with them.
5. Coherence	The researcher presents their understanding in a way that is logical and coherent. This may be in a narrative form or using flow charts and tables or a combination. As long as the principles for the phenomenon are coherent whilst also being respectful of subtleties within the data.
6. Accomplishing general versus specific research tasks	The researcher should ensure that enough participants or situations are included when considering a general understanding of a phenomenon. Conversely, a single case of specific occurrence should be described in enough detail and in an organized way that the reader is able to develop an understanding of the phenomenon.
7. Resonating with readers	The researcher has presented an understanding of the phenomenon in such a way that the reader considers the area in question to be faithfully described or has provided them with a clearer or enhanced understanding of it.

Table 4: Quality guidelines for qualitative research (Smith *et al.*, 1999)

2.8.1 Researchers' Perspective

The researcher is a 31 year old white female. She is younger than all of the males that took part in this study. Similarly to all but one participant she was born and lives in south Wales. She is also married and has a daughter, which is akin to many of the participants in this study. The researcher does not smoke but has tried smoking in the past. She has personal experience of people being regular and often heavy smokers within her immediate family.

The researcher does not have a personal history of MI but her family does. Her grandfather died from an MI when he was 82 years old. Her grandmother also had an MI, amongst many other medical conditions, and it was her resilience and view of the world that 'every cloud has a silver lining' that sparked an interest in seeing the good in something bad. Through clinical training this has been taken further with the introduction of approaches such as narrative therapy where alternative meanings are actively sought and also witnessing in health, mental health, learning disability and child placements that despite trauma and adversity people can and do grow and flourish.

Her research was born out of an interest in researching trauma but specifically the alternative meanings of trauma, namely PTG. Given the pre-existing literature around traumatic events such as abuse, suicide etc. the researcher drew on her personal experience of witnessing her grandmother's growth following her MI to inspire her to study the area of PTG in relation to people who have had an MI.

2.8.2 Clinical Governance

Approval for the research project was granted by the Powys Research Ethics Committee (LREC – Appendix 2) and Research and Development Department at Abertawe Bro Morgannwg University Health Board (R&D – Appendix 3).

In addition, the researcher has been regularly liaising with both her clinical and academic supervisor in order to ensure this research has good scientific quality and is managed accordingly. It has also been reviewed by other clinical psychologists in a less formal way through supervision between the researcher's academic tutor and professional mentor. The researcher has also attended the Good Clinical Practice training run by the National Institute for Social Care and Health Research Clinical Research Centre (12th July 2013).

2.9 Ethics

This study conformed with the ethical requirements the Research and Development department at the Local Health Board in which this research was conducted (see Appendix 3 for a copy of the R&D approval letter). It also conformed to the ethical standards of the LREC board (see Appendix 2 for a copy of the LREC approval letter).

The researcher pursued a person-centred approach to accommodating the needs of participants given that their health status was compromised. In particular, care was taken to offer suitable times and places to conduct the interviews that met their needs and were sympathetic to their potential physical conditions. Other ethical considerations included:

2.9.1 Confidentiality

One of the key issues of ethical concern in relation to this research was the management of confidentiality in relation to the recruitment of participants. Therefore the cardiac rehabilitation manager and lead clinical psychologist accessed the database to establish who met the inclusion and exclusion criteria for this study. Those who met the criteria

were then sent a letter from the cardiac rehabilitation manager inviting them to take part in the study. Those who wished to take part were asked to contact the researcher directly. In order to maintain confidentiality the researcher did not know who had been invited and the cardiac rehabilitation manager and lead clinical psychologist did not know who had responded to the invite.

In addition, all participants were made aware that their personal information would remain confidential and that interview transcripts and audio tapes would be kept in a secure place.

2.9.2 Informed Consent

All participants were given information about the study, the opportunity to ask questions and to have any concerns addressed before they signed a consent form to participate. This was a two stage process as the participants were asked, via the initial telephone contact, whether they had read the information sheet provided and whether they had any questions before proceeding (see Appendix 4 for a copy of the information sheet). If the participant had no questions or their concerns were addressed they were then asked if they gave consent to continue to participate in the study. Therefore verbal consent was given via the initial telephone conversation. The participant and the researcher then met for the interview. The participant was again given the opportunity to read the information sheet and have any questions or concerns addressed. If the participant was again willing to proceed they were then asked to complete and sign a consent form as written proof of consent (see Appendix 5 for a copy of a consent form).

After the interview, participants were taken through a debriefing information sheet which reiterated the purpose of the study and offered them sources of additional support if they felt they needed it (see Appendix 6 for a copy of the debriefing sheet). The participants were offered the opportunity to ask any further questions about the

study. They were also reminded that should they have any questions regarding the study once the researcher had left, that they would be able to contact her via telephone in order to have these questions answered.

2.9.3 Right to Withdraw

Participants were made aware of their right to withdraw at any point during the study and this was reiterated throughout the study itself.

2.10 Design

The study employed a qualitative design in which semi structured interviews were used to explore a person's experience, specifically in relation to their intrapersonal and interpersonal growth following their MI. Using Interpretative Phenomenological Analysis (IPA) the meaning of the person's experience post MI was used to analyse data.

2.10.1 Sample Size

One group of people were used in this study. It was estimated that a minimum of six participants would be interviewed. However if there were enough participants this would be extended to 10. A sample of six was decided upon based on the fact that the study is a qualitative study and research suggests that optimum numbers of participants for this type of research lies between 4 and 10 (Smith, Flowers & Larkin, 2009).

2.10.2 Participants

A total of 17 letters were sent to participants who met the inclusion criteria (see below of the inclusion and exclusion criteria). Initially 10 people were contacted, then after three weeks a further seven people were sent an invitation letter. The second set of invitations was sent to only seven people as they were the only remaining people that met the inclusion criteria for the study. A total of six participants were recruited from a cardiac rehabilitation service within south Wales. This service offers group rehabilitation recovery programs to all those who enter hospital following an acute cardiac event, such as an MI. Each of the participants were identified via a computer database of patients who had been offered to attend the group rehabilitation program. The following inclusion and exclusion criteria were used to identify potential participants. In addition, the consultant clinical health psychologist who heads the service also explored patient notes in order to establish some of the inclusion/ exclusion criteria that was not readily available on the computer database.

Inclusion Criteria:

- The person was a smoker at the time of the MI or had given up only in the 2 years preceding the MI.
- Adult aged 18 to 89 years old.
- Able to participate in an interview of up to 90 minutes.
- Mental health stable.
- Sufficiently fluent in English to read and understand the information sheets and to participate in the interviews.
- No apparent risk (due to potential lone working).
- The patient has had a myocardial infarction within the last 6 to 12 months.
- This is the patient's first myocardial infarction (of either NSTEMI or STEMI type).

Exclusion Criteria:

- Has experienced previous cardiac events (including cardiac surgery).
- Has been re-hospitalised since their myocardial infarction for another cardiovascular event.
- Individuals who pose a risk under the lone working policy of ABMU Health Board.
- Perceives their MI to be of lesser health significance than other health related illnesses/ conditions/ events which they have also experienced since their MI.

2.10.3 Demographics

Before the interview exploring a person's experience of PTG following their MI began, participants were asked a series of demographic questions to provide the researcher with background information. This included information such as age, gender, occupation, marital status, ethnicity, details about their cigarette smoking (both historically and currently), length of time since MI. A copy of a blank demographics questionnaire can be found in Appendix 7.

2.10.4 Semi-Structured Interview

Within IPA, the semi-structured interview is the most widely used method of obtaining data as it is described as a purposeful conversation (Smith, Flowers & Larkin, 2009). The semi-structured interview is used as a means to facilitate the participant's telling of their account whilst also allowing the researcher the opportunity to ask further questions when the participant mentions something of interest or when the research wants more detail about a specific area of the account.

In order to devise the semi-structured interview for this research the researcher applied the guidelines provided by Smith, Flowers & Larkin (2009) which suggest questions to avoid, in-depth questions, putting the questions in a logical sequence and discussing them with relevant people for feedback. As the researcher was interested in PTG following an MI, Tedeschi and Calhoun's PTGI (1996) questions were considered to ensure the structure of the interview schedule and to cover the key areas of interest to the researcher: the self, relationship and view of the world. Open-ended questions that invited in-depth answers were generated along with prompts for each of the key questions. The researcher then discussed the interview schedule with her clinical and academic supervisors, and made adjustments according to their feedback. A copy of the final interview schedule can be found in Appendix 8.

2.10.5 Procedure

Participants who met the inclusion criteria were contacted by letter by the Cardiac Rehabilitation Manager inviting them to take part in the study. Accompanying this letter was the participant information sheet. The letter detailed how the potential participant could contact the researcher in order to initiate potential participation in the research. Once the participant had contacted the researcher to ask any questions they may have had about the research, they were then offered time to consider whether they wished to participate if this was needed. If the person wanted to participate a meeting was arranged for the participant to be interviewed by the researcher. The interview either took place at the participant's home or at a hospital within the health board.

When the researcher and the participant met they read through the information sheet again and further opportunity to ask questions was made available. The participant was then asked if they were happy to take part in the study and to complete and sign the consent form if they were. The interview then began by collecting demographic information before the semi-structured interview questions were used facilitate it further. Once the interview was complete the participant was debriefed, given the

opportunity to ask questions and given the debriefing information sheet. Each interview was audio recorded and then transcribed verbatim.

2.10.6 Data Analysis

The initial stage of analysis involved the transcription of the interviews verbatim. This allowed the researcher to re-engage with the accounts that participants gave. During the research, and particularly during analysis, the researcher kept a reflective diary to record any reflections, assumptions, or any other noteworthy changes during the process of the research (a sample of the reflective diary can be found in Appendix 9). Unlike some qualitative methods, IPA is considered to be more of an approach and therefore has a less formal structure to follow during the process of analysis. The originators (Smith *et al.*, 1999), however, have produced a guide to the process of analysis using IPA (Smith, Flowers & Larkin, 2009). This guide was used by the researcher to provide structure to the analysis process, as outlined in the steps below.

2.10.6.1 Step 1 – Re-reading

In this initial stage of analysis the researcher re-read the interview transcript several times and listened to the interview again to fully engage with the account. At this stage the researcher was also using the reflective diary to note anything of significance that may shape the analysis or any assumptions or changes that were arising.

2.10.6.2 Step 2 – Initial Noting

Once step 1 was complete, the researcher began to annotate the transcripts by typing notes at the side of the transcript (see Appendix 10 for an example of annotation and emerging themes). The notes contained, but were not limited to, descriptive, linguistic and conceptual comments (as guided by Smith, Flowers & Larkin, 2009). So for example highlighting key words or phrases (descriptive), repetition of language or changes in tone (linguistic), and interpreting or questioning the data (conceptual).

2.10.6.3 Step 3 - Developing Emergent Themes

Once the initial noting was complete for a transcript, the researcher began to use the notes in conjunction with the overview of the interview to generate emergent themes. Ultimately the volume of detail was reduced from the initial notes but with the aim of maintaining the interrelationships, connections and patterns as identified in the notes (Smith, Flowers & Larkin, 2009).

2.10.6.4 Step 4 - Connections across Themes

The researcher printed and cut out all of the emerging themes from the transcript and was able to physically move them into clusters. These clusters of themes were then grouped to form master themes.

2.10.6.5 Step 5 - The Next Case

Steps one to four were repeated for all six transcripts individually before proceeding to step six. The researcher attempted to bracket views and themes from the previous transcript before proceeding to the next one.

2.10.6.6 Step 6 - Patterns across Cases

This final stage of analysis involved looking at all of the master themes that had arisen from the six transcripts and bringing together clusters of these themes to form super-ordinate themes. The number of times a theme emerged was used as an indication of its importance. A total of five super-ordinate themes emerged from the data. Super-ordinate themes with their related master themes (with supporting quotes from the interviews) will be discussed in the following chapter.

The following chapter will detail the results of analysing the interviews using IPA as described above.

3. CHAPTER THREE: RESULTS

3.1 Overview of the Results Section

This chapter presents the analysis of six interviews of participant's experiences of PTG following their first MI. Using IPA the author identified four super-ordinate themes with 11 major themes. Figure 4 illustrates the connections between these themes. Each major theme will be discussed with examples of direct quotes from the interviews to support them. Briefly, however, the participant's demographics and relationship with smoking will be outlined. All participants were given a pseudonym primarily to protect their anonymity but also to make the results easier to read than a numerical title.

3.2 Details of the Participants

Table 5 provides basic details about the participants in relation to age, marital status, ethnicity and months elapsed since MI. All the participants who were interviewed were male.

Age	Marital Status	Ethnicity	Months Since MI
Mean = 53.5 Range = 45 to 61	Married = 2 Partner = 2 Single = 2	White British = 5 Italian = 1	Mean = 9.25 Range = 6.5 to 12

Table 5: Summary of Participants' Demographics

A brief description of each participant will now be given, particularly in relation to their smoking habits.

3.2.1 Participant 1: Adam

Adam is a 53 year old man who is of White British origin. He is currently married and working as a Service Supervisor in a Hospital. His MI occurred 9 months prior to the interview. Since then he has been admitted to hospital on just one occasion (October 2013) for 4 days with vertigo. In June to July of 2013 he attended the Cardiac Rehabilitation group. Currently, Adam does not smoke. Prior to his MI Adam only smoked at work where he estimated he smoked 5 Lambert & Butler per day. When Adam was younger, however, he would smoke 15 cigarettes per day. Prior to the MI Adam gave up smoking for 18 months until the December before having the MI. Before having the MI he did not consider himself to be at risk of having an MI as he had always played football and golf and considered himself fit for his age.

3.2.2 Participant 2: Ben

Ben is a 52 year old man who is of White British origin. He is currently married and working as a Shift Manager at a factory. His MI occurred 12 months prior to the interview. Since then he has not been admitted to hospital. In March/ April of 2013 he attended three sessions of the Cardiac Rehabilitation group. Currently, Ben does not smoke. Ben quit smoking in September 2012, before he had his MI. Before this he would smoke between 10-15 Benson & Hedges cigarettes per day. When he was around 28 years of age he gave up smoking for 10 years. Ben never thought about himself as a risk for having an MI before; he thought he was invincible.

3.2.3 Participant 3: Carl

Carl is a 50 year old man who is of White British origin. He has a partner and is working as a long distance lorry driver. His MI occurred 6½ months prior to the interview. Since then he has not been admitted to hospital. In August/ September of 2013 he attended all but one of the Cardiac Rehabilitation group sessions. Currently, Carl does not smoke.

Prior to his MI Carl would smoke up to 30 rolled cigarettes per day (approximately 5oz of tobacco per week). He tried to give up smoking once but described himself as “evil” for the day he did. Carl admitted that he often thought about himself being at risk of having an MI as he was living on fast food at work and then going to bed straight after eating it.

3.2.4 Participant 4: Dan

Dan is a 60 year old man who is of Italian origin; he came to live in the UK at the age of 7 years old. He is divorced and has been separated from his wife for 12 years. He currently works as an electrician at a hospital. His MI occurred 8 months prior to the interview. Since then he has not been admitted to hospital. In June/ July of 2013 he attended all of the Cardiac Rehabilitation group sessions. Following his MI Dan gave up smoking for 6 months; however he has been smoking $\frac{3}{4}$ per day for the past 2 weeks due to work related stress. Prior to his MI, Dan would smoke between 8 and 10 rolled cigarettes per day (approximately 25g of tobacco per week). Dan tried to give up smoking in November 2012 using electronic cigarettes. This lasted for 6 months. Dan did not consider himself to be at risk of an MI and found it a shock when he did experience one.

3.2.5 Participant 5: Eli

Eli is a 61 year old man who is of White British origin. He is married and works as a delivery driver for a supermarket chain in London. His MI occurred 8 months prior to the interview. Since then he has not been admitted to hospital. In June/ July of 2013 he attended all of the Cardiac Rehabilitation group sessions. Currently, Eli does not smoke. Eli had quit smoking since September 2012. Prior to this he would smoke around 3oz of tobacco a week. He had smoked from the age of 10 years old. Eli did not consider himself to be at risk of an MI and admitted that he did not think about it.

3.2.6 Participant 6: Flynn

Flynn is a 45 year old man who is of White British origin. He has a partner and works in a private hospital as a theatre nurse. His MI occurred 12 months prior to the interview. Since then he was admitted to hospital for a prolapse in the back of his neck. In February/March of 2013 he attended all sessions of the Cardiac Rehabilitation group. Currently, Flynn does not consider himself to be a smoker. However he admitted that he does smoke one or two cigarettes when he feels stressed. Before his MI, Flynn would smoke 5 rolled cigarettes per day (approximately 50g of tobacco per week). However he used to smoke more when he was younger. Flynn made various attempts to quit smoking before, trying: tables, electronic cigarettes, mints and chewing gum. Flynn never thought of himself as a risk for having an MI before.

3.3 Qualitative Analysis

Using IPA five super-ordinate themes emerged from the six interviews which addressed the aims of the study, which were to explore:

- The experience of PTG in people who have had an MI and were smokers at the time of, or recently before, their MI
- The psychological process of PTG following an MI.

In the following section the master themes will be discussed and supported using quotes directly from the interviews. Figure 4 outlines the relationship between the master and super-ordinate themes. All quotations will be in italics accompanied by the pseudonym of the participant and the relevant line number from their interview.

3.3.1 Super-ordinate Theme: What is Important and Valued

This super-ordinate theme captures the change or growth in what is important or valued in the participants' lives. What was apparent from the interviews was that the majority of those with spouses (or partners) and families experienced a change in their value of their loved ones. What was also apparent was that the two lorry drivers talked more about the importance of work and money, yet others talked of the change in their value of work as their priorities had changed more towards their family. The major themes for *'What is Important and Valued'* therefore fell into two categories: *'Importance of close relationships and support'* and the *'Importance of work and money'*.

3.3.1.1 Master Theme: Importance of Close Relationships and Support

Wives (or Partners)

For the majority of participants with wives or partners the change in their relationship meant that they became closer following the MI. This was captured by Ben as feeling they had become closer:

"...we have become closer haven't we? I am not saying we were not close before but we were very, it could be fiery on times couldn't it? Since, my heart attack, I think we have grown closer." Ben (Lines 39-44).

For others, such as Flynn, it was about spending more time together:

"She likes spending time with me, so the changes are probably more with her. She made a comment the other day, I said can't you leave me alone for five minutes, I can't even wash my cup without you being there. She said yes but our time off is our time off together." Flynn (Lines 900-908).

Wives and partners also took on new roles of monitoring and caring for the participants to ensure they remain healthy. For example, when Adam talked about starting smoking again he acknowledged that

“...it is not just my health, it is my life as well as I know for a fact my wife would not put up with it.” Adam (Lines 977-980).

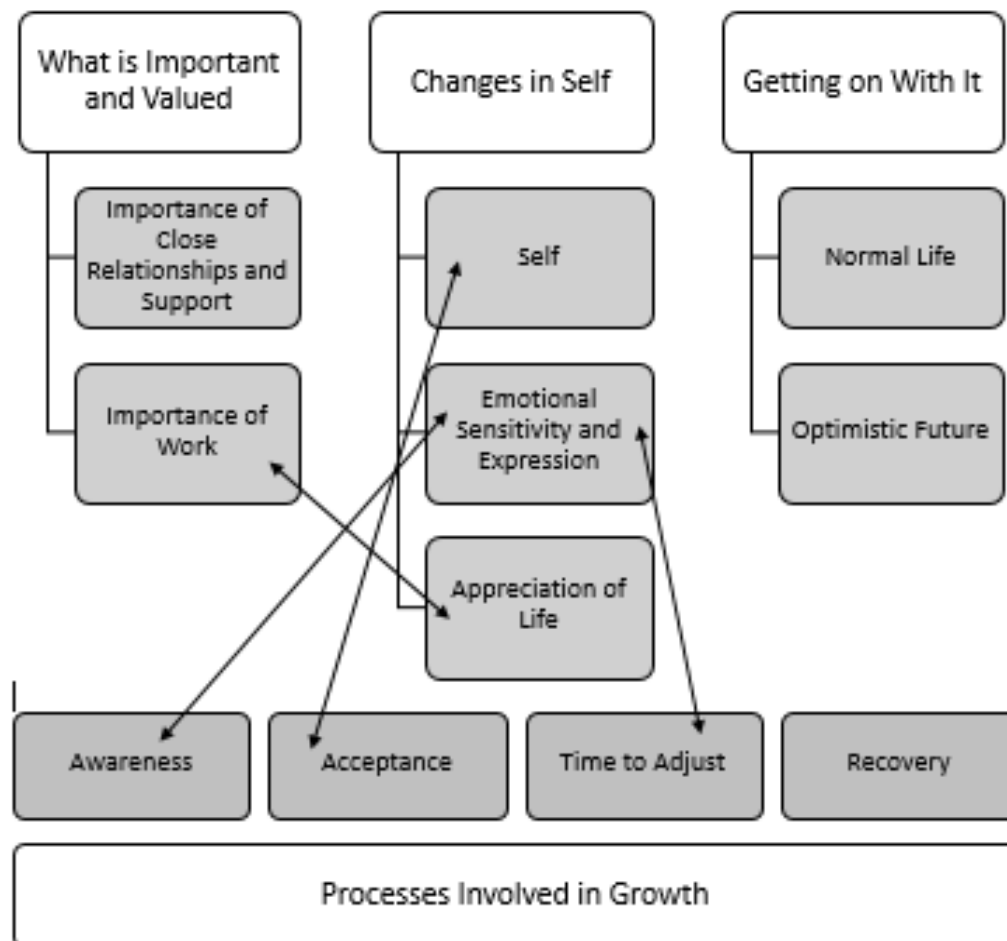


Figure 4: Super-ordinate Themes, Master Themes and their Interactions

Family

The majority of participants with family recognised that although they had always considered family to be important before, there was an increase in importance of family. To the point where this took precedence over other things such as work. Eli captures some of the essence of this when he said:

"...what was important before, is important now. Not more important but you think about how important them things are." Eli (Lines 485-489).

There was also a recognition that as a result of the increased importance and priority of family that participants wanted to spend more time with them. For Flynn this was about spending free time (i.e. not at work) with his daughter, yet for Ben it was about re-establishing relationships with his family.

"I make more of an effort with my father, we have never been close, my sister I haven't seen for 20 years, I wanted to go and see her. Family sort of things, things that matter now..." Ben (Lines 229-235).

"Our day's off are with [daughter], we go out and do things, the weekends are spent with [daughter]" Flynn (Lines 877-880).

There was also a recognition of the support the family gave to them whilst they were recovering. Although sometimes this was perceived as difficult because family members were concerned about the participant's health, overall it was seen as a positive and helpful thing.

"All the children are so supportive; they are so caring and lovely." Adam (Lines 746-748).

Friends

For some participants the importance of friendships had changed. For Adam he made new friends from the Cardiac Rehabilitation Group. These friendships were important to Adam as he felt he had someone to talk to about what had happened who could truly understand him.

"...it brought new friendships when I went to the rehab, I met some people there that I got friendly with, two in particular, one I go golfing with ...I have always had interests in

golf as I have said but his has given me someone on my par who has had the same as me and we have things in common so we can go out and go and knock a few balls and have a chat at the same time.” Adam (Lines 268-277 and 279-287).

For others, such as Ben, friends were supportive following his MI which was surprising to him.

“Friends came around, which was very important... I suppose, I was surprised by a couple of friends, you know coming around” Ben (Lines 318-319 and 323-325).

Flynn, however, found that although he still considered people friends that his relationship with them had changed since the MI as he no longer socialised with them.

“My relationship with the boys, I hardly see them now, but they are always there if I need them, but I don’t go out drinking with them and I don’t do anything like that since the heart attack.” Flynn (Lines 720-725).

Support from Medical Professionals

There were also some participants who acknowledged the support they had received from medical professionals in the form of monitoring, reassurance, advice and overall treatment.

“I have all the support in the world and I know I have the support here, I know I work here but all I need to do is pick the phone up to [nurse] or any of the team and they would help. I am fortunate that the Consultants are also available..” Adam (Lines 955-962).

“...luckily with the treatment I have had and the service I have had from the hospital, it hasn’t been a trauma.” Dan (Lines 225-228).

3.3.1.2 Master Theme: Importance of Work and Money

For the majority of participants the importance of work and money changed. For some there was a sense that work was a necessity and a chore, instead they wanted to remain at home or with family. Such as Ben, who stated that:

"I go to work now, because I have to go to work." Ben (Lines 481-486).

Flynn reported that money was no longer something he held onto as something important. He admitted:

"I spend a bit more money now than I should instead of saving it, as you can see my treat on the drive..." Flynn (Lines 98-102).

For others however, (such as the two long distance lorry drivers Carl and Dan) there was a real sense that work and money was important not only as lifestyle but as part of who they are going forward from their MI. This would suggest that taking forward who they were pre MI to who they are now is important in helping them grow following their MI and to continue the self.

"...got this attitude in life now that, you take every day as it comes and what is important. What is important? You work to get money and you do what you want to do." Carl (Lines 614-619).

"The only stressful thing was that I didn't have my licence because that is my life, that was worrying until I got that back" Dan (Lines 229-232).

"I know they say health is important but it isn't, if you have got money it makes a big difference." Dan (Lines 238-247).

This theme links with the 'Self' theme whereby participants were recognising changes and growth in the self. With Carl and Dan the importance of work and money is less about change and more about increased recognition of the importance of these aspects of life that began before the MI and are continued now.

3.3.2 Super-ordinate Theme: Changes in Self

The *'Changes in Self'* super-ordinate theme captures the day to day changes in most of the participants in terms of how they think, feel and behave. These changes in the self have been a permanent feature since the MI and all of the participants appeared to be aware of some change in the self. This awareness of changes in the self links this super-ordinate theme and the master theme of 'Awareness' found in 'Processes Involved in Growth'. The master themes for Changes in Self are: *'Self'*, *'Emotional Sensitivity and Expression'* and *'Appreciation of Life'*.

3.3.2.1 Master Theme: Self

For some participants the changes in the self appear to reflect a stance of taking a step back, putting things into perspective and being more laid back (both with themselves and others).

"I still get wound up but not like I used too. I think sometimes, I stand back from people and think it is not worth it, I could be gone tomorrow." Dan (Lines 142-146).

"I have just become more understanding and I try to put things into perspective, rather than fly off the handle for this or not care about that, I just tend to think more about the issue, rather than deal with the issue in a flash. I sit back and think about it and then deal with it and I think that is how I have coped with the stress levels as well." Adam (Lines 554-565).

"I suppose I am easier on myself, I must try and rest more, I work 12 hour shifts and after 2 or 3 of those on the trot, I am absolutely exhausted aren't I? Whereas before I had to get up and I had to crack on, whereas now it doesn't really matter if I have that extra hour in bed." Ben (Lines 186-194).

For some, like Adam, this became apparent to them through feedback from others.

"..apparently, I have become a nice person and more laid back so that is what they reckon anyway, I don't take it quite so serious I think." Adam (Lines 418-422).

3.3.2.2 Master Theme: Emotional Sensitivity and Expression

It would seem that the most surprising change in themselves for the majority of the participants lay in their emotional sensitivity and expression. For some there was a change in that they would now become emotional about things when they least expected it. For many of the participants there was an awareness of change in their emotional sensitivity and there appears to be some adjusting to this change occurring. Thus linking this master theme to both the 'Awareness' and 'Adjustment' master themes in 'Processes Involved in Growth'.

"...I just get so emotional. It is unbelievable, I have never been like it, but I am. Thinking about it now, and just talking to you about how nice my family are, is making me feel emotional.... But yes, I am so emotional now and it is not just about things that affect me, it can be someone else's thing..." Adam (Lines 766-785).

"I have never shown any form of emotion at all. I see something on TV, you know, and I am quite you know, my eyes are going and I can't understand it, I can't quite get to grips with it yet, it is better now than it was you know, before I would just burst into tears. I don't know, is it better, I suppose it is to a certain degree." Ben (Lines 519-529).

"Sometimes you do get emotional but not that you want to. You just burst out crying sometimes, you can be thinking of something and just burst out crying, you think bloody hell, what is the matter with you and then it will go...It is quite strange and it does take you by surprise, I think "Oh God, what is that all about!" You do get quite emotional, that has surprised me, I have to be honest." Carl (Lines 578-592).

For others, such as Eli, it was more about a change in emotional expression. It was about telling those he loved how he felt about them. Again this was something that he seemed to be in the process of adjusting to.

"I make more of an effort to say the words, with the kids I am close to them but I do say the words now." Eli (Lines 443-446).

3.3.2.3 Master Theme: Appreciation of Life

For many participants there was a reported increase in appreciation of life.

"I do value my life a lot more, don't get me wrong, I have always valued life and been grateful about life and not taken things for granted, whether it is my health or what I have got but yes I do value things a lot more now. Without a doubt." Adam (Lines 830-837).

This was particularly apparent in the day to day appreciation of life, where literally waking each morning was appreciated by most of the participants.

"Each day is a bonus really, you get up and think to yourself, yes I am here today, let's make the most of it. You treat each day as it comes, yes you make plans, of course you do..... And I will continue to make plans but the important thing is getting up in the morning and thinking I have got another day, let's make the most of it." Adam (Lines 896-908).

"I do tend to think now when I wake up, I enjoy my time at home a lot more.." Ben (Lines 424-426).

"Every day is a bonus isn't it. To wake up in the morning, definitely. I laugh and joke about it sometimes, when people ask "How are you?", I say "Well, I am still alive!". You know, but it is true." Dan (Lines 415-420).

"...if it is being a good day then I appreciate it more, before I used to go with the flow a little bit. So you appreciate the good things more." Eli (Lines 536-540).

There appeared to be an acceptance of the increase in appreciation of life in those who reported it. Thus linking this master theme with the 'Acceptance' master theme in 'Processes Involved in Growth'.

3.3.3 Super-ordinate Theme: Processes Involved in Growth

Throughout the interviews there appeared to be different stages that the participants had, were or had yet to go through in order to achieve growth. These processes involved in growth did not appear in a linear form, instead they intertwined but there were distinctions in the form of the master themes: *'Awareness'*, *'Acceptance'*, *'Adjustment'* and *'Recovery'*.

3.3.3.1 Master Theme: Awareness

All participants demonstrated a change in awareness at some level during the course of their interviews. Some of this awareness has already been discussed in terms of awareness of relationships. However there were also other changes in awareness, for example awareness of their limitations:

"...the biggest thing for me is I have got to rest, I work 12 hour shifts, I have got to rest after it, whereas, before I didn't. I got back into that again but I realised I can't do this anymore." Ben (Lines 481-486).

"I don't go running around playing football and stuff like I used to but I am 53 years of age.." Adam (Lines 58-61).

There was also increased awareness of health and illness.

"...Little things that have happened, you go to the doctor, whereas before I just used to ignore it, now I think is that something to do with it." Dan (Lines 389-393).

Many also commented on their awareness of their mortality. For some this became quite anxiety provoking but it appeared to motivate them.

"...having a heart attack, you realise that you are mortal..." Eli (Lines 105-106).

There was also the more general sense from most of the participants that following their MI things would have to change in some way. For Flynn he was aware of this very early on:

"...when I came out of hospital, I wanted a bottle of wine, a Chinese and I wanted everything I wasn't allowed, because I knew there were going to be changes..." Flynn (Lines 681-685).

There was also a real sense from all participants of an increased awareness that they needed to lead a healthier lifestyle. These healthy lifestyle changes centred on areas such as alcohol consumption, healthy eating, and physical fitness. For most participants there was a reduction in alcohol consumption. Generally there was a sense that people did not want to give up drinking completely but that they recognised the importance of reducing the amount they drank, so they compromised.

"I am not giving up the beer either, I only go out once a week and I don't drink half as much as I used to." Carl (Lines 125-129).

"I am not going to give that up either and my bottle of wine. But it is not like what I used to drink so I will sit here on a Saturday night with a bottle of wine and I am happy with that." Flynn (Lines 348-353).

With healthy eating and diet, again there was a sense that there was an increased awareness of the importance of eating a healthy diet. However for some, completely changing their diet to one that was entirely made up of healthy food was too difficult. So again compromises were reported and moderation became the key.

"...we have a Chinese / Indian once a month instead of twice a week. And through speaking to the dietician, I didn't have to give everything up, I just need to have it in proportion and in a period of time, instead of 5 or 6 a week." Adam (Lines 882-890).

"George Forman, I bought one of them and I bought one of them chip fryers. You only use a spoon with one of them and I bought a slow cooker, and I think well, there is not a lot else that you can do, I can't eat what I don't like." Carl (Lines 107-114).

Despite the increase in awareness, however, what the participants were reporting about change in eating habits was not always being internalised and actioned. Therefore suggesting that they participants were not fully entering into the 'acceptance' and 'adjustment' stage of the 'Processes Involved in Growth' with regard to healthy eating.

For most participants there was an increased awareness that they needed to exercise and get physically fitter and as with healthier eating there was compromise. Thus suggesting that there was awareness but not full acceptance of the need to change.

"I am aware and I do try and do a bit more exercise" Adam (Lines 343-345)

“Outside and that, I have never been the type of person to go to a gym or anything like that. Walking wise, I can walk to work when the weather is fine, that is not a problem, or if I get the chance to walk down into town.” Eli (Lines 45-51).

3.3.3.2 Master Theme: Acceptance

For some who had developed awareness there then came acceptance, particularly in relation to aging and mortality.

“I have got no problem with when I am getting older...” Eli (Lines 586-588).

“I think if I have got 10 years then I have got 10 years, you know, if you die, you die. It doesn’t bother me, it really doesn’t. I flaked out in the ambulance and there was no light at the end of the tunnel so when I do go, I’m not going anywhere... That’s what I think and I have enjoyed myself so there we are, if I got to the age of 60 then all well and good...” Carl (Lines 75-87)

For some there was also an element of accepting what life had to throw at you. That getting irate about things would not change it so they were better off accepting it instead.

“I just sit back and look at the bigger picture and think to myself, no it is really not that worth it, I just leave things go over my head now, where I never used to...” Adam (Lines 136-141).

There also appeared to be an acceptance of the lifestyle change of smoking. It would seem that many of the participants had gone through the awareness and were entered into the acceptance phase of this change. For most participants it would seem that the MI made them reassess their smoking habits. For some this meant a reduction in the amount they smoke, for others it meant completely quitting smoking.

“I had to pull the reins in on certain things like smoking” Adam (Lines 28-32).

“I won’t start smoking again. I have fancied one, and if I hadn’t have had the heart attack, I would have had one.” Ben (Lines 171-174).

"It did in the beginning, I will be honest. Giving up smoking and everything else, I was getting rid of, from the smoking, I was being more conscious about stuff." Flynn (Lines 261-265).

Interestingly, smoking was not a significant a feature of the interview, even when asked about what has changed since their MI. Potential reasons for this will be discussed in the next chapter.

3.3.3.3 Master Theme: Time to Adjust

For many of the participants there seemed to be a suggestion that time to adjust was part of their experience following their MI. For some this time to adjust was in relation to what happened immediately after the MI.

"I am concerned that it is not quite right, what are they going to do, then all of a sudden I am being discharged and get on with it like." Ben (Lines 82-86).

"...on the Friday, I had the operation and I came out on the Friday night. By the time you got used to hospital food and I talked the nurses around to letting me go to the bathroom on my own, it was time to come out." Dan (Lines 299-305).

For others, such as Flynn, there were more specific examples of adjusting to life following the MI.

"...in the beginning I was having a lot of chest pain but I was getting used to the statin." Flynn (Lines 474-477).

Participants such as Adam, however, were more reflective about adjustment in general from the MI. Adam appeared to suggest that there may be a time frame in which he will adjust but there was an open-minded uncertainty about how long that would be.

"I think it is time going to be a factor, I don't think it is going to be overnight, well, I don't know, it is not going to be six months, eight months. I know what has happened, I have accepted what has happened and I know I have to move on from what has happened." Adam (Lines 192-200).

3.3.3.4 Master Theme: Recovery

What became clear from the very first interview with Adam was that participants considered there to be different types of recovery: physical and psychological.

“Physically, I would say probably 90% physically. I do get tired, I think it might be medication, I don’t know.....Psychologically, I would say it is different, I think it takes some getting used to that you have had a heart attack and out of the blue and not expecting it...” Adam (Lines 49-52 and 69-73).

It would seem that for most participants they perceived their physical recovery at the time of their interview (at least 6 months post MI) to be well underway or complete. However the psychological recovery was less advanced in comparison to their physical recovery.

“I feel physically recovered..... psychologically, I haven’t recovered in a sense because, not all the time but I do think when is the next episode going to occur.” Eli (Lines 110-115).

For some there was awareness that particular factors were hindering recovery. For example, Dan considered his lack of work to be stifling his recovery.

“...when you are sitting here when you are used to being employed and then you are only getting £70 a week, it doesn’t help. It didn’t help the recovery side, the psychological side.....When I went on the treadmill test, I struggled, I really did. I didn’t think I was going to get through it but I did and I couldn’t get on there quick enough.” Dan (Lines 241-247 and 250-254).

3.3.4 Super-ordinate Theme: Getting on with Life

This Super-ordinate theme arose from the majority of participants at some stage of the interview using a phrase such as ‘Getting on with Life’. There was a sense that most

participants wanted a normal life and had an optimistic view of the future. Hence the Master Themes for *'Getting on with Life'* are: *'Normal Life'* and *'Optimistic Future'*.

3.3.4.1 Master Theme: Normal Life

For most participants there was a real sense that they wanted to get back to having a 'normal life'. Though this is not typically recognised as 'growth' as it implies a return to before without development or change (Joseph, 2011), there did appear to be recognition that this may not be entirely possible or that it would be with some modifications. Therefore suggesting that wanting a 'Normal Life' was actually more about getting on with living.

"I am getting there and I do feel positive about life and about going on and leading a normal life until whenever." Adam (Lines 110-113).

"I just want to get back to normal as quickly as possible. Whether that is possible I do not know." Ben (Lines 252-255).

3.3.4.2 Master Theme: Optimistic Future

The majority of participants believed they had a promising and positive future ahead of them.

"I feel confident and happy about the future and as I said as long as I do what I need to do then there is no reason why, it is down to me basically." Adam (Lines 969-974).

"I am looking forward to it. In the very beginning in the back of your mind, we are all the same as you get older, you start thinking when are things going to start completely breaking down you know. That is the only thing. Apart from that I should think it is going to get better..." Eli (Lines 568-577).

For some that meant future plans with their loved one, such as getting married and seeing their children/ grandchildren grow up.

“The future is bright. I seem to be over this now, they have discharged me now. We have even talked about getting married haven’t we? We have been together 7 years, the future is good.” Ben (Lines 488-493).

“We are arranging the wedding for next year.” Flynn (Lines 955-957).

“I want to see the kids grow up and the grandkids but I feel quite happy with the life I have had.” Dan (Lines 522-525).

3.4 Conclusions

These results suggest that the participants experienced changes in themselves (*‘Changes in Self’*) and in what was important and of value to them (*‘What is Important and Valued’*). There were also disclosures of the experiences of the processes involved in growth following an MI (*‘Processes Involved in Growth’*). Finally there was the hope of a normal life with an optimistic future (*‘Getting on with it’*). These results will be discussed further in the following chapter; particularly in relation to existing literature and theory.

4.CHAPTER FOUR: DISCUSSION

4.1 Overview of Chapter

This chapter will discuss the findings of this research in relation to existing literature. The clinical and service implications of the findings will be outlined, particularly in relation to cardiac rehabilitation services and clinical psychology. The strengths and limitations of this study will be highlighted, specifically in relation to the method and design. Potential areas of further research will be summarised before concluding the chapter.

4.2 Research Findings and Current Literature

The main aim of this research was to explore the experience of PTG in people who have had an MI and were smokers at the time, or shortly before, their MI. The secondary aim of this research was to explore the psychological process of PTG following an MI within this sample. To date, there does not appear to be research that has explored PTG with this subgroup of people. From the data four super-ordinate themes emerged: 'Processes Involved in Growth', 'What is Important and Valued', 'Changes in Self', and 'Getting on with Life'. These themes, along with their master themes, will be discussed in relation to existing literature in this area. As stated in chapter one, the existing literature specifically researching PTG following an MI is limited. Therefore this discussion will also draw on the wider literature and theories outlined in the introduction.

In chapter one, Joseph's (2011) three broad categories of response to adversity or trauma were outlined (i.e. Impairment, Recovery and Growth). During the interview and analysis process it became apparent that participants did not fall neatly into either

of these categories. For some it would appear that they were more aligned to one than the other, however it was clear that for some there were areas of their life following their MI that were concomitantly at the different stages suggested by Joseph (2011). The author is not arguing that Joseph's categories are irrelevant, only that they may be simplifying a complex process. This may be helpful to begin to understand responses, but if used alone could neglect a deep and rich experience of responses to adversity or trauma. Supporting this with quantified evidence is Norekvål *et al.*'s (2008) study in which 65% of the sample perceived one positive effect from their MI experience, 20% perceived two positive effects, and 13% perceived three positive effects. They concluded that positive and negative outcomes are not mutually exclusive following an MI, and that well-being and dysfunction may coexist.

4.2.1 Super-ordinate Theme: Processes Involved in Growth

Throughout the interviews and analysis a non-linear process of growth emerged with themes of 'Awareness', 'Acceptance', 'Time to Adjust' and 'Recovery' being identified.

4.2.1.1 Master Theme: Awareness

Using existential ideas, Joseph (2011) recognised three areas that were embedded in PTG. All of these ideas begin with developing awareness, particularly of uncertainty. Awareness was a process that was recognised during the analysis in all of the participants. With awareness of how they think, feel or behave broadly capturing the awareness they displayed. For example Ben talked about his increased awareness of what he thought were priorities in his life now and an awareness of his health when he said:

"...the biggest thing for me is I have got to rest, I work 12 hour shifts, I have got to rest after it, whereas, before I didn't. I got back into that again but I realised I can't do this anymore." Ben (Lines 481-486).

Participants also showed awareness of their own agency and its consequences (as suggested by Joseph, 2011). For some this came soon after the MI, such as Flynn who stated:

“...when I came out of hospital, I wanted a bottle of wine, a Chinese and I wanted everything I wasn’t allowed, because I knew there were going to be changes...” Flynn (Lines 681-685).

4.2.1.2 Master Theme: Acceptance

Joseph (2011) also talked about acceptance particularly in relation to uncertainty; stating that one of the processes involved in PTG is to develop awareness then acceptance of uncertainty of life. For the participants, however, the process of awareness then acceptance was also in relation to the uncertainty of life, but more specifically around ageing, mortality, a way of coping with life in general and health behaviours. Carl, as an example of ageing and mortality, stated:

“I think if I have got 10 years then I have got 10 years, you know, if you die, you die. It doesn’t bother me, it really doesn’t. I flaked out in the ambulance and there was no light at the end of the tunnel so when I do go, I’m not going anywhere... That’s what I think and I have enjoyed myself so there we are, if I got to the age of 60 then all well and good...” Carl (Lines 75-87).

For Adam acceptance was portrayed as:

“I just sit back and look at the bigger picture and think to myself, no it is really not that worth it, I just leave things go over my head now, where I never used to...” Adam (Lines 136-141).

When considering the lifestyle change of smoking, Ben stated:

“I won’t start smoking again. I have fancied one, and if I hadn’t have had the heart attack, I would have had one.” Ben (Lines 171-174).

What was interesting about this study was that participants were chosen based on their smoking habits. However smoking was not reported as being as significant a feature.

This could partly be explained by the fact that before the interview began the researcher asked participants a series of demographic questions and then asked about their past and current smoking habits. It is therefore possible that participants did not talk as much about smoking as they had already spoken about it in the pre-interview questions.

4.2.1.3 Master Theme: Time to Adjust

A further master theme within '*Processes Involved in Growth*' included '*Time to Adjust*'. According to Tedeschi and Calhoun's model of PTG (1999) it is the threat and destruction of the person's assumptive world that existed before the trauma and the subsequent rebuilding of these assumptions in light of the trauma that produces growth. This could potentially be subsumed under the term adjustment. Adam was able to provide a lived-experience narrative of the process of growth according to Tedeschi and Calhoun (1999) in which not only the notion of adjustment featured but time to adjust was salient:

"I think it is time going to be a factor, I don't think it is going to be overnight, well, I don't know, it is not going to be six months, eight months. I know what has happened, I have accepted what has happened and I know I have to move on from what has happened." Adam (Lines 192-200).

Adam's statement also suggests an open-minded uncertainty about how long it was going to take him to adjust. Again in line with the existential ideas of the processes involved in growth from Joseph (2011).

Once again, Laerum *et al.*'s (1991) study is suggestive of adjustment without actually using that term when they conclude that positive changes concerning total life situation and life-style factors seem to persist after two to four years and may even be improved. There is an implication here that time may promote adjustment as there is almost an equivalent number of people reporting growth within specific areas, and a slight

increase in those reporting overall benefits following their MI. This notion of having time to adjust was something that frequently arose in the current study particularly in relation to the early stages following their MI. For example Dan said: *"...on the Friday, I had the operation and I came out on the Friday night. By the time you got used to hospital food and I talked the nurses around to letting me go to the bathroom on my own, it was time to come out."* Dan (Lines 299-305).

4.2.1.4 Master Theme: Recovery

Through the interview and analysis processes it became apparent that the notion of recovery was divided into two distinct categories for the participants: Psychological and Physical. This notion of recovery being a two pronged approach does not appear in the current literature around PTG following an MI. It may be that areas of psychological recovery are subsumed by categories such as improved personal strength in Tedeschi and Calhoun's model (1996) and themes of healthy lifestyle change and greater knowledge of health (Petrie *et al.*, 1999) subsumed under physical recovery. Adam summarised his recovery:

"Physically, I would say probably 90% physically. I do get tired, I think it might be medication, I don't know.....Psychologically, I would say it is different, I think it takes some getting used to that you have had a heart attack and out of the blue and not expecting it..." Adam (Lines 49-52 and 69-73).

The notion of recovery in this instance would support the original suggestion that the process of growth is not linear but changeable, as most participants suggested that their physical recovery was well underway or complete but their psychological recovery was less advanced. For example Eli stated:

"I feel physically recovered..... psychologically, I haven't recovered in a sense because, not all the time but I do think when is the next episode going to occur." Eli (Lines 110-115).

4.2.2 Super-ordinate Theme: What is Important and Valued

The super-ordinate theme of *'What is Important and Valued'* encompasses two areas of life that were identified as being areas of importance for all participants: *'Importance of Close Relationships and Support'* and *'Importance of Work and Money'*.

4.2.2.1 Master Theme: Importance of Close Relationships and Support

Tedeschi and Calhoun's (1996) model of PTG was used to devise questions for this study, of which one asked about close relationships following their MI. Though it was anticipated that relationships would have become closer and new ones developed (in line with results from studies such as Petrie *et al.*, 1999), what became apparent from the interviews were the range of relationships people drew on that grew or developed following their MI.

Wives (or Partners)

Within the context of this study it appeared to be important to distinguish the participants' changed relationships with their wife or partner from that with their family. For many participants their relationship with their wife or partner became closer which is in line with Petrie *et al.*'s (1999) study. For example Ben was aware that:

"...we have become closer haven't we? I am not saying we were not close before but we were very, it could be fiery on times couldn't it? Since, my heart attack, I think we have grown closer." Ben (Lines 39-44).

For some there was also recognition of the support they received from their wives or partners through changing roles. This is illustrated by Adam's comment about starting smoking again in which he acknowledges that:

"...it is not just my health, it is my life as well as I know for a fact my wife would not put up with it." Adam (Lines 977-980).

This aligns with Senol-Durak & Ayvasik's (2010) conclusions that higher levels of PTG were positively related to support from significant others. It is likely that other studies that identified the importance of family in relation to PTG were including wives/partners within that term.

Family

Tedeschi and Calhoun's (1996) model of PTG identifies that existing relationships become closer following trauma. For the majority of participants within this study there was recognition of the increased importance of family. To the point where this took precedence over other things such as work. Eli and Ben's quotes capture this theme:

"...what was important before, is important now. Not more important but you think about how important them things are." Eli (Lines 485-489).

"I make more of an effort with my father, we have never been close, my sister I haven't seen for 20 years, I wanted to go and see her. Family sort of things, things that matter now..." Ben (Lines 229-235).

Only one previous study of PTG following an MI has recognised this distinction in terms of relationships with Laerum *et al.* (1988) concluding that over half of their sample reported an increase in the value of family relationships. However, Laerum *et al.*'s follow up study in 1991 found that the increased closeness to family decreased significantly from 67% after 3-5 months post MI to 31% after 24-51 months post MI. The point in time that the participants were interviewed for this study (between 6 to 12 months post MI) may therefore be more reflective of Laerum *et al.*'s initial study findings (Laerum *et al.*, 1988) but may not have featured as significantly had this study recruited participants who were more than two years post MI, as in Laerum *et al.* (1991).

Friends

The theme of friends was different for each person that had raised it. For Adam, it was about the new friendships he had made through the cardiac rehabilitation group. He stated:

"...it brought new friendships when I went to the rehab, I met some people there that I got friendly with, two in particular, one I go golfing with ...I have always had interests in golf as I have said but his has given me someone on my par who has had the same as me and we have things in common so we can go out and go and knock a few balls and have a chat at the same time." Adam (Lines 268-277 and 279-287).

Developing new friendships as a result of the trauma would conform to Tedeschi and Calhoun's (1996) model of PTG in which they suggest that one of the areas of growth is in relationships, which includes developing new ones.

Ben reported the support he had received from his friends:

"Friends came around, which was very important... I suppose, I was surprised by a couple of friends, you know coming around" Ben (Lines 318-319 and 323-325).

This is a theme that reflects Senol-Durak and Ayvasik's (2010) findings that scores of PTG were positively related with support from friends; therefore emphasising the importance of friendships. Laerum *et al.* (1988) also found that the value of friends was higher in those who perceived life had changed for the better. This would appear to reflect both Adam and Ben's value of friendships with the difference being that Adam is valuing new friendships whereas Ben is valuing old ones.

Support from Medical Professionals

For some participants the support they received from medical professionals was an important theme within the 'Importance and Value of Relationships'. Norekvål *et al.* (2008) reported that participants within their study identified the theme 'getting health care' as being one of the positive experiences they had post MI. Petrie *et al.* (1999) found that participants reported 'greater knowledge of health' as one of the positive aspects following an MI. Although participants in this study also recognised their health

care and their knowledge of their health as being important and positive experiences since their MI there was a sense that those who reported positive experiences with medical professionals were talking as much as about the interpersonal aspect of their support as they were the practical. For example, Adam and Dan reported the following:

“I have all the support in the world and I know I have the support here, I know I work here but all I need to do is pick the phone up to [nurse] or any of the team and they would help. I am fortunate that the Consultants are also available..” Adam (Lines 955-962).

“...luckily with the treatment I have had and the service I have had from the hospital, it hasn’t been a trauma.” Dan (Lines 225-228).

Petrie *et al.*’s (1999) study revealed that people who experience an MI more often report changes in healthy lifestyle whereas those with breast cancer more often report improvements in the quality of close relationships. Although it is not possible to directly compare how often these two areas were reported in this study what is clear is that both categories feature heavily in this study. The difference in these results could partly be explained by the fact that Petrie *et al.*’s (1999) asked a single open ended question whereas in this study participants were asked open ended questions in relation to the PTG areas suggested in Tedeschi and Calhoun’s (1996) model. So in effect the participants in this study were asked more specific questions which may have resulted in them reflecting on areas they may not have otherwise considered.

4.2.2.2 Master Theme: Importance of Work and Money

For many participants the importance of work and money changed. For some there was recognition that work and money were being usurped by relationships and family. This would appear to support Tedeschi and Cahoun’s (1996) model in which there is a greater appreciation for things that were taken for granted before the trauma, including relationships. For example, Ben stated that:

"I go to work now, because I have to go to work." Ben (Lines 481-486).

For the two long distance lorry drivers (Carl and Dan) there was a real sense that work and money was important not only as lifestyle but as part of who they are going forward from their MI. This would suggest that taking forward who they were pre MI to who they are now is important in helping them grow following their MI and to continue the self.

"...got this attitude in life now that, you take every day as it comes and what is important. What is important? You work to get money and you do what you want to do." Carl (Lines 614-619).

"The only stressful thing was that I didn't have my licence because that is my life, that was worrying until I got that back" Dan (Lines 229-232).

The importance of work and money is not something that has been identified in previous studies, and yet this would appear to fit Tedeschi and Cahoun's (1996) model in relation to a greater appreciation for things that were taken for granted before the trauma. However it is important to note that the weight of this theme may have been influenced by the age of this sample. All of those who were interviewed were of working age and were at work or intending to return to work; therefore work was still a factor in their lives. It would be interesting to explore whether this theme would be such a prominent feature for those who were retired or were no longer working due to ill health.

4.2.3 Super-ordinate Theme: Changes in Self

This study revealed a super-ordinate theme of *'Changes in Self'*. Improvements in personal strength or developing yourself in new ways following trauma feature in Tedeschi and Cahoun's (1996) model of PTG. *'Changes in Self'* was subsumed by the master themes *'Self'*, *'Emotional Sensitivity and Expression'* and *'Appreciation of Life'*.

4.2.3.1 Master Theme: Self

Petrie *et al.* (1999) concluded that developing a serious illness can cause changes in personal views of the self. This they found to be true for both the MI and breast cancer group within their study. For some participants the theme of self appeared in the form of taking a step back, putting things into perspective and being more laid back (both with themselves and others). For example Dan reported:

"I still get wound up but not like I used too. I think sometimes, I stand back from people and think it is not worth it, I could be gone tomorrow." Dan (Lines 142-146).

This notion of putting things into perspective was found to be positively correlated with PTG in Garnefski, *et al.*'s (2008) study. However, they captured this change within coping rather than a change in the self.

4.2.3.2 Master Theme: Emotional Sensitivity and Expression

Many participants reported that one of the more surprising changes they found was in their increased emotional sensitivity and expression. For many there appeared to be a change in that they would become emotional unexpectedly.

"Sometimes you do get emotional but not that you want to. You just burst out crying sometimes, you can be thinking of something and just burst out crying, you think bloody hell, what is the matter with you and then it will go...It is quite strange and it does take you by surprise, I think "Oh God, what is that all about!" You do get quite emotional, that has surprised me, I have to be honest." Carl (Lines 578-592).

Previous studies have highlighted changes in emotional empathy towards family (Petrie *et al.*, 1999) and linked emotion focused coping to increase PTG (Senol-Durak & Ayvasik, 2010). Yet none have reported the changes in emotional sensitivity and expression found within this sample.

4.2.3.3 Master Theme: Appreciation of Life

For many participants there was a general appreciation of life:

"I do value my life a lot more, don't get me wrong, I have always valued life and been grateful about life and not taken things for granted, whether it is my health or what I have got but yes I do value things a lot more now. Without a doubt." Adam (Lines 830-837).

There was also an appreciation of life on a day to day basis:

"Every day is a bonus isn't it. To wake up in the morning, definitely. I laugh and joke about it sometimes, when people ask "How are you?", I say "Well, I am still alive!". You know, but it is true." Dan (Lines 415-420).

This theme has been widely recognised in PTG both in the Tedeschi and Calhoun (1996) model and as a theme with people who had survived an MI (Affleck *et al.*, 1987; Laerum *et al.*, 1988; Petrie *et al.*, 1999; Norekvål *et al.*, 2008). Clearly this is an important theme for people who have experienced an MI as it is one that has recurred across many studies.

4.2.4 Super-ordinate Theme: Getting on with Life

One of the most frequently occurring phrases from participants in this study was about "Getting on with Life". This was a theme that superseded master themes of '*Normal Life*' and '*Optimistic Future*'.

4.2.4.1 Master Theme: Normal Life

For many participants the rhetoric was about returning to a normal life. Based on Joseph's (2011) categories of response to trauma this would place people within the 'Recovery' category. However there was a sense participants were aware that this may

not be entirely possible and there would need to be some change in order to achieve 'getting back to normal'. Ben stated that:

"I just want to get back to normal as quickly as possible. Whether that is possible I do not know." Ben (Lines 252-255).

This would suggest that wanting a 'Normal Life' was actually more about getting on with living, sometimes with the development or growth seen in PTG (Tedeschi & Calhoun, 1996).

4.2.4.2 Master Theme: Optimistic Future

For many participants the future looked positive, and often involved plans with loved ones.

"I am looking forward to it. In the very beginning in the back of your mind, we are all the same as you get older, you start thinking when are things going to start completely breaking down you know. That is the only thing. Apart from that I should think it is going to get better..." Eli (Lines 568-577).

"The future is bright. I seem to be over this now, they have discharged me now. We have even talked about getting married haven't we? We have been together 7 years, the future is good." Ben (Lines 488-493).

Optimistic future or future talk does not appear to feature in any of the previous studies about PTG in people who have survived an MI. Once again, this difference in findings could be partly explained by participants in this study being asked a direct but open question about their future; thus prompting reflections on their life to come.

4.2.5. Comparison with Tedeschi and Calhoun

It is important to note that despite using the Tedeschi and Calhoun's model of PTG (1995) as the basis for the interview questions, the full range of PTG factors did not arise

from the interviews. This could, in part, be explained by the nature of the trauma that was being explored. Many of the participants described how they did not realise they were having an MI until it was diagnosed when they went to see their doctor or to the hospital. Many of them described that they thought they had indigestion. This raises the question of whether the nature of the trauma did not have such a shocking and instant impact as other types of trauma, so therefore the life threatening element of the trauma was not instant but was realised later on when they had time to reflect on what was actually happening.

4.3 Clinical and Service Implications

The fundamental premise of this study was to increase understanding of the experience of people six to twelve months post first MI; particularly those who were smokers at the time of their MI. Although the author acknowledges that the sample in this study is not representative of all those who experience their first MI, the results can be used to suggest clinical and service implications with the caveat that they may not be applicable to all.

Results suggest that growth in areas of lifestyle, self, what is important and valued and participant's view of life and the future are underpinned with processes such as awareness, acceptance, adjustment and recovery. The ultimate aim of a cardiac rehabilitation service is to reduce the risk of reinfarction and mortality in those who have experienced an MI. These results could be used to inform such services and have implications for the work of Clinical Psychologists.

4.3.1 Clinical Implications for Cardiac Rehabilitation Services

Within the NICE Guidelines MI: Secondary Prevention (2013) it is recommended that those who have had an MI:

“Begin cardiac rehabilitation as soon as possible after admission and before discharge from hospital. Invite the person to a cardiac rehabilitation session which should start within 10 days of their discharge from hospital.”

(NICE, 2013; Page 10).

The core components of the cardiac rehabilitation programme offered should include:

- health behaviour change and education
- lifestyle risk factor management
- physical activity and exercise
- diet
- smoking cessation
- psychosocial health (which includes stress management)
- medical risk factor management
- cardioprotective therapies
- long-term management
- audit.

(Section 4 of NICE Commissioning Cardiac Rehabilitation Services, 2013).

It would appear that the processes of awareness, adjustment, acceptance and recovery in relation to lifestyle changes have been recognised here in this study through the relevant themes. However, there also appear to be changes in people’s relationships, emotions, within themselves and their appreciation of life and the future that are not being offered as part of the rehabilitation programme. Though it is recognised that addressing all of these areas with everyone may require a lot of time and resources, the benefits of doing could be the prevention of further MI’s and improved health and well-being. As NICE (2013) recommend, to prevent further MI’s and to improve health and well-being involves a combination of:

- Risk reduction behaviours (such as improving diet and increasing physical activity),
- Psychological support and stress reduction,

- Compliance with medication (such as Beta Blockers and those that lower cholesterol),
- And coronary revascularisation (though only for certain patients).

Psychological support has been underlined as the areas mentioned above are all areas of psychological adjustment and potential for growth following this trauma that have the prospect of improving outcomes following an MI. To implement such changes there are implications for the role of a clinical psychologist within this setting.

4.3.2 Implications for Clinical Psychologists

Recommendations by NICE MI – secondary prevention (2013) regarding psychological support include:

- Offer stress management within cardiac rehabilitation.
- Not routinely offering psychological interventions such as cognitive behavioural therapy.
- Following other NICE guidelines when patients present with clinical anxiety or depression.

With the recommended components of a cardiac rehabilitation programme and the psychological support endorsed by NICE, there appears to be little scope for psychological growth as psychological support is limited to stress management unless distress is at a clinical level. Though stress management may provide useful skills for decision making and health behaviours, it does not allow participants to think about the psychological process of ongoing management of a cardiac condition and what psychological recovery and growth would mean in this context.

With this in mind, Clinical Psychologists could provide direct psychological input to patients to help them consider and make meaning of their experience through the use of techniques such as those used in Narrative Therapy. Neimeyer (2004) provides

clinical examples of how narrative approaches can be used in clinical settings to foster PTG. One example that is potentially applicable to cardiac rehabilitation services is the use of therapeutic journals to write about difficult and painful emotions in order to help people find meaning and even positive growth in their adversity (Pennebaker, 1997). Another potentially viable option would be the use of therapeutic groups where people could talk about their experience of having an MI, again with the aim of developing a new meaning to the event. This has been successfully used with survivors of suicide and homicide (Rynearson, 2001) and incest (Alexander *et al.*, 1989).

Clinical Psychologists could also train cardiac rehabilitation staff to think and have conversations with patients that go beyond health behaviours, medical management and stress management. This could be implemented by using narrative therapy techniques to externalise the problem, recognising the effect the problem has on them and those around them, and to recognise and reinforce alternatives to problem talk; using techniques such as curious questions (Neimeyer, 2004). However this work should occur only when it is considered to be appropriate, as the early stages following a trauma will typically involve supporting people through the distress of what they have experienced, normalising their distress and avoiding pathologising it (Calhoun *et al.*, 2010).

4.4 Strengths and Limitations of this Study

Using the same criteria that were used to evaluate the quality of the studies for the systematic review, the CASP (2010) criteria will be used to evaluate and discuss this study. The focus of the strengths and limitations of this study will be on the method and design.

4.4.1 Recruitment and Sample

Of those who were invited to be interviewed, only patients who had experienced one MI with no other serious physical or mental illness were included. This was to ensure the experience of growth captured by the interviews were from the MI and not from other life threatening or chronic health conditions. However, with such a sample it does raise questions about the representativeness in comparison to the total MI population. Of those within the MI population who have experienced other illnesses, would they have a different experience of growth following their MI? Also, the participants in this study were all 6 to 12 months post MI with no serious health conditions or reinfarction. This raises the question of whether this sample were more likely to have a more positive outlook and longer term outcome given that they had relatively stable health?

Despite inviting females to take part in the study, only men replied and therefore the sample was entirely male. This was not the researchers aim. With no females taking up the offer to take part it does beg questions as to why the males did and the females did not?

The impact of a history of other life-threatening illness (cancer, or stroke) in spouse or child was not considered within this sample. If participants did have close family who had experienced such life threatening illnesses would this have affected their experience of PTG?

4.4.2 Data Collection and Analysis

Participants had the option of being interviewed in their own home or within the local hospital. Subsequently three of the interviews were conducted at the participants' home and three within the health psychology department offices of the local hospital.

It is unclear whether the difference contexts within which the interview took place had an impact on the interviews themselves.

The current study did not include any questionnaires about the participants' physical or mental health as the researcher did not want to prime people for problem saturated talk during the interview. However, it may have been useful to use measures such as the Physical Health Questionnaire (Schat, Kelloway & Desmarais, 2005) or Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983) to screen for distress or to have used more general measures of well-being or adjustment such as the COPE (Carver, Scheier & Weintraub, 1989).

There were also two interviews that were conducted with the partner or wife present. There are potential implications with the partners being present as they may have influenced the participant's responses to the interview questions. There was also the risk that the participants may have answered less openly with their partners present. This may also have influenced the themes arising from those interviews if they emphasised the importance of support from partners and/ or family as a result.

4.4.3 Ensuring Credibility

As discussed in Chapter 2, ensuring the quality of qualitative research involves credibility checks (Smith *et al.*, 1999; Elliott, 1999). The researcher stated her position in relation to the participants and the study itself through personal disclosure in Chapter 2. This was written following a bracketing interview with a colleague, which enabled the researcher to begin to separate what were her assumptions and beliefs from those of the participants. In addition to this, the researcher kept a reflective diary (See Appendix 9 for a sample of this). This further enabled the researcher to remain aware of her thoughts, beliefs and assumptions during the process of the research.

As recommended by Smith *et al.* (1999) and Elliott (1999) credibility of analysis can be achieved through triangulation whereby themes are checked by others to ensure quality. In this instance, triangulation with the researcher's clinical and academic supervisor ensured the quality of the themes. Ideally, the researcher would have shared the themes with the participants involved in the study to ensure quality as well, however time constraints prevented this from happening.

4.5 Implications for Future Research

Although this research is the first of its kind to explore the experience of PTG following an MI in those who were smokers at the time of the MI, the sample lived in the south Wales area and was entirely male. There is, therefore, scope to investigate further with other samples (particularly groups such as women and people from ethnic minorities) to explore their PTG experiences post MI and increase our understanding of their experiences from different groups.

In addition, all of the participants in this study were working at the time of their MI. This raises the questions: How would people who have retired experience PTG following an MI? It is anticipated that the theme of the increased importance of work and money seen in this study would not be present. However, this may depend on a number of factors, such as time since retirement, which could impact on adjustment.

Two interviews in the current study were conducted with the wife/ partner of the participant present. Again this raises questions such as: What are the experiences of PTG for spouses/ partners of people who have had an MI? Do their experiences resonate with their partners? And how much influence does a spouse/ partner have on the person who has had the MI in terms of PTG and vice versa?

There were also themes that arose during this research that had not been found or reported on before. In particular was the surprise the participants felt at their increased emotional sensitivity and expression. This left one participant asking for reasons why this would be happening which suggest that further research in this area could aid understanding of this phenomenon.

4.6 Conclusions

In the UK, there has been a gradual decline in the mortality rates for MIs, which means that more people are surviving an MI. Survivors have frequently reported that they considered their experience of an MI as traumatic. In recent years the focus of the aftermath of traumatic events has turned to explore how people grow in a positive way (i.e. PTG). Within the last 20 years research has begun to explore PTG in people who have survived an MI. However, the research conducted has been largely quantitative in its methodology, resulting in a lack of understanding of the experience of PTG following an MI. It has also focused on MI survivors with little or no research within the subgroups of this population (e.g. smokers).

This study aimed to explore the experience of PTG in people who have had an MI and were smokers at the time of their MI. The second aim was to explore the psychological process of PTG following an MI. Using semi-structured interviews, six male participants' experiences of PTG following their MI questioned. IPA revealed a super-ordinate theme of *'Processes Involved in Growth'* which addressed the aim to explore psychological processes of PTG following an MI. Further super-ordinate themes arose: *'What is Important and Valued'*, *'Changes in Self'*, and *'Getting on with Life'*. These themes suggest that smokers who survive an MI experience PTG in a similar way to more generic MI group. However within these super-ordinate themes, master themes of *'Importance of Work and Money'*, *'Emotional Sensitivity and Expression'* and *'Optimistic Future'* arose that had not occurred before. Whether these are unique to this subgroup,

to this sample or have not been explored before due to difference in the methodology of previous studies could not be confirmed.

The implications of these findings on clinical practice include using cardiac rehabilitation groups to explore the psychological processes such as adjustment and growth following an MI. There are also implications for clinical psychology as direct psychological input to patients could help them consider and make meaning of their experience through the use of techniques such as those used in Narrative Therapy. These findings also have wider research implications with potential areas of new research including exploring: PTG with other groups such as people from ethnic minorities; PTG for spouses/ partners of people who have had an MI; further the theme of emotional sensitivity and expression that arose in this study.

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Appendix 1: CASP Checklist (2010)



10 questions to help you make sense of qualitative research

How to use this appraisal tool

Three broad issues need to be considered when appraising the report of a qualitative research:

- Are the results of the review valid?
- What are the results?
- Will the results help locally?

The 10 questions on the following pages are designed to help you think about these issues systematically. The first two questions are screening questions and can be answered quickly. If the answer to both is “yes”, it is worth proceeding with the remaining questions.

There is some degree of overlap between the questions, you are asked to record a “yes”, “no” or “can’t tell” to most of the questions. A number of prompts are given after each question. These are designed to remind you why the question is important. Record your reasons for your answers in the spaces provided.

There will not be time in the small groups to answer them all in detail!

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Screening Questions

1. Was there a clear statement of the aims of the research?

☐ Yes

☐ Can't tell

☐ No

HINT: Consider

- What was the goal of the research?
- Why it was thought important?
- Its relevance

2. Is a qualitative methodology appropriate?

☐ Yes

☐ Can't tell

☐ No

HINT: Consider

- If the research seeks to interpret or illuminate the actions and/or subjective experiences of research participants
- Is qualitative research the right methodology for addressing the research goal?

Is it worth continuing?



Detailed questions

3. Was the research design appropriate to address the aims of the research?

☐ Yes

☐ Can't tell

☐ No

HINT: Consider

- If the researcher has justified the research design (e.g. have they discussed how they decided which method to use)?

4. Was the recruitment strategy appropriate to the aims of the research?

☐ Yes

☐ Can't tell

☐ No

HINT: Consider

- If the researcher has explained how the participants were selected
- If they explained why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study
- If there are any discussions around recruitment (e.g. why some people chose not to take part)

5. Was the data collected in a way that addressed the research issue?

☐

Yes

☐

Can't tell

☐

No

HINT: Consider

- If the setting for data collection was justified
 - If it is clear how data were collected (e.g. focus group, semi-structured interview etc.)
 - If the researcher has justified the methods chosen
 - If the researcher has made the methods explicit (e.g. for interview method, is there an indication of how interviews were conducted, or did they use a topic guide)?
 - If methods were modified during the study. If so, has the researcher explained how and why?
 - If the form of data is clear (e.g. tape recordings, video material, notes etc)
 - If the researcher has discussed saturation of data
-

6. Has the relationship between researcher and participants been adequately considered?

☐

Yes

☐

Can't tell

☐

No

HINT: Consider

- If the researcher critically examined their own role, potential bias and influence during
 - (a) Formulation of the research questions
 - (b) Data collection, including sample recruitment and choice of location
- How the researcher responded to events during the study and whether they considered the implications of any changes in the research design

7. Have ethical issues been taken into consideration?

☐ Yes

☐ Can't tell

☐ No

HINT: Consider

- If there are sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained
- If the researcher has discussed issues raised by the study (e.g. issues around informed consent or confidentiality or how they have handled the effects of the study on the participants during and after the study)
- If approval has been sought from the ethics committee

8. Was the data analysis sufficiently rigorous?

☐ Yes

☐ Can't tell

☐ No

HINT: Consider

- If there is an in-depth description of the analysis process
- If thematic analysis is used. If so, is it clear how the categories/themes were derived from the data?
- Whether the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process
- If sufficient data are presented to support the findings
- To what extent contradictory data are taken into account
- Whether the researcher critically examined their own role, potential bias and influence during analysis and selection of data for presentation

9. Is there a clear statement of findings?

☐ Yes ☐ Can't tell ☐ No

HINT: Consider

- If the findings are explicit
 - If there is adequate discussion of the evidence both for and against the researchers arguments
 - If the researcher has discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst)
 - If the findings are discussed in relation to the original research question
-

10. How valuable is the research?

HINT: Consider

- If the researcher discusses the contribution the study makes to existing knowledge or understanding e.g. do they consider the findings in relation to current practice or policy?, or relevant research-based literature?
- If they identify new areas where research is necessary
- If the researchers have discussed whether or how the findings can be transferred to other populations or considered other ways the research may be used

Appendix 2: Powys Research Ethics Committee Approval Letter

Part of the research infrastructure for Wales funded by the National Institute for Social Care and Health Research, Welsh Government.
Yrhan o weithwyl ymchwil Cymru a safonir gan y Sefydliad Cenedlaethol ar gyfer Ymchwil Gofal Cymdeithasol ac Iechyd, Llywodraeth Cymru



Dyfed Powys Research Ethics Committee

Postal address: PO Box 108

Building 1

St David's Park

Cardiff SA31 3WY

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Telephone : 01267 225045

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E-mail : sue.byng@wales.nhs.uk

Website : www.nres.nhs.uk

Mrs Sara L Morgan
Trainee Clinical Psychologist
Cardiff and Vale University Health Board
School of Psychology - Cardiff University
Tower Building - Park Place
Cardiff
CF10 3AT

8 November 2013

Dear Mrs Morgan:

Study title: Experiences of Post Traumatic Growth Following First Episode Myocardial Infarction: Smoker's Perspectives
REC reference: 13/WA/0310
Protocol number: SPON 1242-13
IRAS project ID: 131375

Thank you for your email of 7 November 2013, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

We plan to publish your research summary wording for the above study on the NRES website, together with your contact details, unless you expressly withhold permission to do so. Publication will be no earlier than three months from the date of this favourable opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to withhold permission to publish, please contact the Co-ordinator Mrs Sue Byng, sue.byng@wales.nhs.uk.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation [as revised], subject to the conditions specified below.

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).



Cynhelir Cydweludgofid Gweyddwr Iechyd Academaidd y Sefydliad Cenedlaethol ar gyfer Ymchwil Gofal Cymdeithasol ac Iechyd gan Fwrdd Addysgu Iechyd Powys

The National Institute for Social Care and Health Research Academic Health Science Collaboration is hosted by Powys Teaching Health Board



Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database within 6 weeks of recruitment of the first participant (for medical device studies, within the timeline determined by the current registration and publication trees).

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non clinical trials this is not currently mandatory.

If a sponsor wishes to contest the need for registration they should contact Catherine Blewett (catherineblewett@nhs.net), the HRA does not, however, expect exceptions to be made. Guidance on where to register is provided within IRAS.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Evidence of insurance or indemnity		
GP letter	1	20 October 2013
Investigator CV		30 August 2013
Letter from Sponsor		
Dr Jennifer Moses's CV		26 August 2013
Dr Linda Speck's CV		05 September 2013
Participant Consent Form	3	22 October 2013
Participant Information Sheet	3	20 October 2013
Participant Information Sheet: Debriefing	2	20 October 2013
Protocol	3	29 July 2013
REC application	1	06 September 2013

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document *"After ethical review – guidance for researchers"* gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

Further information is available at National Research Ethics Service website > After Review

13/WA/0310	Please quote this number on all correspondence
-------------------	---

We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at <http://www.hra.nhs.uk/hra-training/>

With the Committee's best wishes for the success of this project.

Yours sincerely


Dr Gareth Davies
Chair

Enclosures: "After ethical review – guidance for
researchers"

Copy to: Mrs. Helen Falconer
Ms. Kirsty Price, ABMU Health Board

Appendix 3: Research and Development Approval Letter



Bwrdd Iechyd Prifysgol
Abertawe Bro Morgannwg
University Health Board



Dyddiad/Date: 10th December 2013

Mrs. Sara L Morgan
School of Psychology
Cardiff University
Psychology Tower
Park Place
Cardiff
CF10 3AT

☎ 01792 704056

Fax: 01792 545774

✉ Jemma.Hughes@wales.nhs.uk

✉ Abm.rd@wales.nhs.uk

Dear Mrs. Morgan

Re: Experiences of Post Traumatic Growth Following a Myocardial Infarction

IRAS Ref: 131375

Sponsor: Cardiff University

Thank you for submitting your proposal to us for approval for the above named study to be carried out within our Health Board. The attached listed documents were reviewed.

Health Board Governance checks have been completed and passed. Please accept this letter as confirmation of local Health Board approval.

As part of Research Governance, you are required to:

1. Adhere to the protocol approved and inform the R&D office of any changes (including changes to the end date of the project) and ensure any changes are reported to the Research Ethics Committee(s), for review/approval.
2. Inform the R&D office of any local adverse/serious events that may occur, whilst also reporting these according to the sponsor's protocol and procedures.
3. Complete any interim and final reports requested by the R&D office. If sponsored by this Health Board, you will be asked by the Joint Scientific Review Committee to complete a 6 monthly progress report along with your final report at study completion.
4. Ensure that your research complies with any relevant regulatory requirements and legislation relating to: Clinical Trials, Data Protection Act 1998, Health & Safety, Caldicott Guidelines, the use of Human Tissue for research purposes, Mental Capacity and ICH Good Clinical Practice (GCP).
5. Ensure that all training courses requested by the Sponsor are completed by all relevant members of the research team before any research activity is carried out. All research staff undertaking clinical trials of an investigational medicinal product (CTIMPs) must be GCP trained, and should continue to update their GCP training every 2 years. Copies of GCP certificates should be filed in the Trial Site File, with a copy forwarded to the R&D Department.
6. Ensure the research is undertaken in compliance with all Health Board R&D Standard Operating Procedures (SOPs). The latest versions of all SOPs can be obtained by contacting the R&D Department.

Bwrdd Iechyd ABM yw enw gweithredu Bwrdd Iechyd Lleol Prifysgol Abertawe Bro Morgannwg
ABM University Health Board is the operational name of Abertawe Bro Morgannwg University Local Health Board
Pencadlys ABM / ABM Headquarters, 1 Talbot Gateway, Port Talbot, SA12 7BR. Ffon / Tel: (01639) 683344
www.abm.wales.nhs.uk

Reda Ref: 131375

Page 1 of 4

NISCHR Clinical Research Portfolio Studies

If your study has been adopted onto the NISCHR Clinical Research Portfolio (CRP), it will be a condition of our permission that the Chief Investigator uploads local recruitment data onto the portfolio database.

For more information on the process of uploading recruitment data please look at the following link:
<http://www.crncc.nihr.ac.uk/aboutus/processes/portfolio/precruitment>

Uploading of recruitment data will enable NISCHR to monitor research activity within Health Boards, resulting in NHS R&D allocations to be driven by activity.

To apply for your study to be adopted onto the NISCHR CRP, details can be found at:
<http://www.wales.nhs.uk>

For more information and advice on the NISCHR Clinical Research Portfolio please email:
portfolio@wales.nhs.uk

Should you wish to extend your study to other NHS organisations you must obtain the approval of all NHS bodies concerned. If the study is sponsored by ABMU Health Board you must notify the R&D Office of your intention to open the study in other sites.

Indemnity Arrangements

The Sponsor indemnifies and holds harmless ABM University Health Board, its employees and agents for any harm caused by negligence on behalf of the Sponsor, including any harm caused to participants by the administration of the investigational product. However, please note that the Sponsor will not indemnify ABM University Health Board for any harm caused by negligence on behalf of the research team or other individual or agent.

Researchers employed by ABM University Health Board, including those holding Honorary Contract status are indemnified against actions for negligent harm via standard arrangements with Welsh Risk Pool (WRP). Provision for 'no-fault' compensation is limited under the scheme and is only available on an ex gratia, discretionary basis where the Sponsor is a NHS Organisation.

ABM University Health Board reserves the right to suspend approval of any research study where deviation from appropriate RG & GCP standards is uncovered.

May I take this opportunity to wish you well in undertaking the research. We will write to you in the future to request updates on the progress of the research and look forward to receiving outcomes of the study.

Yours sincerely,



Professor SC Bain
Assistant Medical Director (R&D)
ABMU Health Board
Enc: List of SSI and R&D documents submitted

Re: Experiences of Post Traumatic Growth Following a Myocardial Infarction
IRAS Ref: 131375
Sponsor: Cardiff University

SSI Documents submitted

Document:	Subtitle:	Version:
REC favourable opinion letter and all correspondence	REC Favourable Opinion Letter	08/11/13
Other (please specify)	Invitation Letter	
Other (please specify)	Clinical Director approval	
REC favourable opinion letter and all correspondence	Notification of application	09/09/13
REC favourable opinion letter and all correspondence	Provisional opinion - Further clarification Required	27/09/13
Site-Specific Information Form XML file	SSI checklist	
Summary CV for local researchers and research nurses	Linda Speck - ABM UHB	05 Sep 2013
Site-Specific Information Form (signed/authorised pdf or hard copy)	ABM UHB	02 Sep 2013
Research participant information sheet (PIS)	PIS	v2 28 Jul 2013

Re: Experiences of Post Traumatic Growth Following a Myocardial Infarction
 IRAS Ref: 131375
 Sponsor: Cardiff University

R&D Application Documents submitted

Document:	Subtitle:	Version:
Research participant consent form	ICF	v2 25 Jul 2013
Other (please specify)	Debrief information sheet	v1 28 Jul 2013
Summary CV for Academic Supervisor	Jennifer Moses	26 Aug 2013
R&D Form (Parts A-D) (signed/authorised pdf or hard copy)		06 Sep 2013
Research protocol		v3 29 Jul 2013
R&D Application checklist		
Summary CV for Chief Investigator (CI)	Sara Morgan	30 Aug 2013
Written final confirmation from the organisation(s) acting as sponsor	Cardiff University & Insurance certificates - UMAL (01 Aug 2013 - 31 Jul 2014)	16 Aug 2013

Appendix 4: Participant Information Sheet



Experiences Following a Myocardial Infarction

Participant Information Sheet

Introduction

You have been invited to take part in a research project that aims to explore your experience of life and coping following a myocardial infarction (MI). Please take the time to read this information sheet before you decide whether you would like to give consent to take part in the study. The following information outlines why the research is being carried out and what it will involve.

The researchers

My name is Sara Morgan and I am a Trainee Clinical Psychologist on the South Wales Doctoral Programme in Clinical Psychology. I am carrying out this study as part my training. The research is being supervised by Dr Jenny Moses (Clinical Psychologist, South Wales Programme in Clinical Psychology) and Dr Linda Speck (Clinical Psychologist working in Abertawe Bro Morgannwg University Health Board).

What is the purpose of the research?

This study aims to gain an understanding of people's experience of life and coping following their first myocardial infarction, particularly for those who were smoking at the time or within 2 years of their MI. Research in the past has focused largely on the negative effects of having experienced a MI. However there is growing

evidence that not all aspects of experiencing a MI are negative, some may in fact be positive. It is hoped that this study will provide a greater understanding of the experience following a MI so that healthcare workers will have a better understanding and will be able to tailor treatment to reflect this.

Why have I been invited to take part in the study?

I am seeking to interview adults who have experienced their first MI in the last 6 to 12 months, were smokers at the time of their MI or within 2 years of it, and consider the MI to be a significant health event. Dr Speck reviewed your clinical records without me being present and identified you as being eligible to take part in the research. Therefore I do not know or hold any confidential information about you. Should you choose not to take part in the research following your invitation letter from Dr Speck, I will not know that you have been approached to take part in the study.

Do I have to take part?

You are under no obligation to take part in the research. Even if you do agree to take part you may change your mind at any time, without having to give a reason. Participation is entirely voluntary. Your decision will not affect the standard of care that you receive in any way. If you have any doubts about taking part in this research please feel free to take as much time as you need to consider it further.

Consent to take part in the study

If you decide that you would like to take part in the research, please fill in the 'consent to be contacted form' that is enclosed with this information sheet and post it back in the stamp addressed envelope provided. If you agree to be contacted I will then call you on the number that you provided. You can ask me any questions that you may have. If you would still like to take part we can arrange a time and place to meet that is convenient for you. This will either be your home or Princess of Wales Hospital Bridgend.

When we first meet I will re-read this information sheet with you and answer any further questions. I will then ask you to read and sign the consent form to show that you agree to take part in the research. I will then ask you some questions

about your age and some brief medical details. This is so that I have some basic information about the people who take part in the research.

What will I be asked in the interview?

The interview will take between 60 to 90 minutes. I will ask you questions about what you were like before you experienced the MI, how you have coped since and if anything has changed in your life since the MI. You do not have to answer any questions that you do not want to. I will audio-record the interview so that I can type up exactly what was said during the interview. After the interview you will have the opportunity to ask any questions or discuss any concerns that you may have about taking part in the research.

Following the interview I may contact you again so that you can give me feedback about the themes I find in the interviews. This will happen either by email (if you have a computer) or by post. Again, you do not have to take part in this and can withdraw at any time.

What will happen to my information?

After the interview I will type out what was said word for word so that I can think about the interview in more detail. I aim to look at themes that may come from the interviews to see whether people share any similar experiences and opinions, or if people have different views on their experience following a myocardial infarction. All audio recordings and typed transcripts will remain anonymous; your name or details will not be linked to your interview record. All copies of the interview and audio recordings will be kept in a secure storage facility such as a locked filing cabinet.

My supervisors will read anonymised sections of the interview record to support me in the process of writing my report, which is part of my training. Any sections of interview I quote within the report will be also be anonymised. A full anonymised record of one interview will be included at the back of my report.

In the future, I hope to publish my research in an academic journal, and present my findings at relevant conferences. Anonymised quotes will also be used in these journals and presentations.

At the end of the research interview I will ask you if you would like a summary of the findings once I have written up the research. You may also read my full research report when it is completed.

What are the possible disadvantages and risks of taking part?

The interview is intended to ask you about your life, coping and experiences shortly before and after you had your myocardial infarction. This may be a difficult and emotional experience for you. If at any point during the interview you feel you need to stop and take a break please feel free to do so. There will also be an opportunity to talk at the end of the interview about the things we have discussed, and I will be providing you with an information sheet about people you can talk to afterwards if you wish to have further support.

Taking part in the research will not result in payment. Only reasonable travel costs (at public transport rates) to the Princess of Wales Hospital will be reimbursed if you choose to meet me there.

What are the potential benefits of taking part?

There may not be benefits to taking part in this study for you personally. However, your experience will provide a rich knowledge and understanding of what it is like for people who have a MI for the first time. This knowledge will be used by healthcare professionals to improve their clinical work with people like yourself.

What will happen if I don't want to carry on with the study?

If at any point during the study you wish to withdraw please contact me by telephone, email or post. Even if you have completed the interview you can still withdraw your information. I will ask you what you would like me to do with the information you have provided by that point. If you would like me to destroy the information at any stage, this is absolutely fine and will not affect your care in any way.

What if there is a problem?

If you have any concerns about any aspect of this research you can contact me or my research supervisor Dr Jenny Moses (both contact details are found below).

Will my taking part in this study be kept confidential?

All of the information you provide to this study will be kept confidential. The only time I cannot guarantee confidentiality is if I believe you are at risk of harm to yourself or to someone else. In these instances I will have to break confidentiality. However I will, where possible, talk to you about this first if I did need to break confidentiality.

Who is monitoring this study?

This study has been reviewed by an independent group of people who sit on a Research Ethics Committee. This process is to protect your rights, safety and dignity. This study was reviewed and approved by the Dyfed Powys Research Ethics Committee. It is also being regularly monitored by my supervisors to ensure quality, standards and above all safety is being maintained.

THANK YOU FOR TAKING THE TIME TO READ THIS INFORMATION!

Contact Details:

Sara Morgan (Trainee Clinical Psychologist)
Sara.morgan@wales.nhs.uk
Telephone number: 07977397634 (Mon-Fri 9am-5pm)

Dr Jenny Moses (Clinical Psychologist)
Academic Supervisor, South Wales Doctoral Programme in Clinical Psychology
Jenny.moses@wales.nhs.uk
Telephone number: 029 2087 0582.

Appendix 5: Participant Consent Form



CONSENT FORM

PARTICIPANT

Title of Project: **Experiences Following a Myocardial Infarction**

Name of Researcher: **Sara Morgan**

Please initial all boxes you agree with:

1. I confirm that I have read and understand the information sheet (Version 2) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected. ☐
3. I understand that participation will involve my interview being audio-recorded, with possible use of anonymised word for word quotation in the research report. ☐

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version 2: 25th July 2013

Page 1 of 2



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South Wales Doctoral Programme in Clinical Psychology
De Cymru Rhaglen Doethuriaeth mewn Seicoleg Glinigol



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Caerdydd CF10 3AT
Cymru Y Deyrnas Unedig

4. I understand that my information will be stored securely in a filing cabinet, and the information I provide will be anonymised for use in the study.

☐

5. I understand that my GP will be notified that I am taking part in this study so that they can better support me if I need their support following the interview.

☐

6. I agree to take part in the above study.

☐

Name of Participant	Date	Signature
(PLEASE PRINT)		

Name of Person Taking Consent	Date	Signature
(PLEASE PRINT)		

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version 2: 25th July 2013

Page 2 of 2

Appendix 6: Participant Debriefing Sheet



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Experiences Following a Myocardial Infarction

Debriefing Information Sheet

Thank you very much for taking part in this study. The study aimed to explore the experiences of people who have had a myocardial infarction and were smokers either at the time or at least 2 years prior to the Myocardial Infarction (MI). I was interested in how people's sense of self, their relationships and their way of viewing life since their MI has changed.

Studies have recognised that there is often variation in the positive changes that occur after a person has experienced a traumatic event. These positive changes could be in relation to themselves (e.g. becoming more independent), relationships with others (e.g. developing a more supportive relationship with a family member) and with life in general (e.g. having a more live life to the full attitude). Within groups of individuals who have had a MI there has been found to be more variation, such as differences between the experiences of men and women following a MI. There have been particular calls for more research in relation to related health behaviours such as smoking. This study aimed to enrich the current literature about the relationship between positive changes and first myocardial infarction by exploring the experiences of those who were smoking at the time of their MI.

Further Support

Talking about your experience of having had a MI and the subsequent changes in your life may have been a difficult conversation for you. This is understandable

Version 1 28th July 2013

and you may feel low after taking part in this interview. If you do feel upset here are some suggested sources of support you may want to consider calling upon:

- Your friends and family may be able to provide you with immediate support.
- Dr Linda Speck, Consultant Clinical Psychologist (telephone number: 01656 752148) can also be contacted for support following this study.
- Your GP is also a potential source of support if you feel upset about what has been discussed for a longer than you feel comfortable with.
- There are also a number of organisations and charities that offer support. You may find some of these helpful.

British Heart Foundation

Heart Helpline - 0300 330 3311

"When it comes to anything heart-related, we want to make sure that you have all the information, support and guidance you need. We're here to help you, whether you're calling about yourself or someone you care about. Our cardiac nurses and heart health advisors are on hand to help with any questions or concerns you have about heart health and heart conditions."

Telephone: 0300 330 3311 (similar cost to 01 or 02 numbers).

Lines are open 9am-5pm Monday to Friday.

The Samaritans (www.samaritans.org)

The Samaritans is a national charity and the co-ordinating body for the 201 Samaritans branches across the UK. The Samaritans aims to help alleviate emotional distress and has a helpline which is open 24 hours a day for anyone in need.

Telephone: 08457 909090.

The Samaritans also has a Welsh Language Line: 0300 123 3011 (open from 7pm to 11pm only, 7 days a week).

If you have any further questions in relation to this study please contact me on the details below.

Contact details:

Name: Sara Morgan

Email: Sara.morgan@wales.nhs.uk

Telephone number: 02920 870582/ 07977397634 (Mon-Fri 9am-5pm)

Address: Doctorate in Clinical Psychology, 11th Floor, Tower Building, School of Psychology, 70 Park Place, Cardiff, CF10 3AT

If you have any concerns that you would like to raise about the research you can also contact my academic supervisor:

Contact details:

Name: Dr Jenny Moses

Email address: Jenny.moses@wales.nhs.uk

Telephone number: 02920 870582

Address: Doctorate in Clinical Psychology, 11th Floor, Tower Building, School of Psychology, 70 Park Place, Cardiff, CF10 3AT.

Thank you again for taking the time to participate in this study.

Version 1 28th July 2013

Appendix 7: Demographics Questionnaire

Demographics Questionnaire

Participant Number:

Age (in years):

Gender:

Male

Female

Ethnicity:

Marital Status:

Occupation:

Number of months since MI:

Type of MI (if known):

STEMI

NSTEMI

Any hospitalisations or illnesses since MI:

Did you attend Cardiac Rehabilitation?

If yes, how long has it been since you attended that service?

Do you currently smoke?

If yes, how many cigarettes do you smoke per day?

How many cigarettes per day were you smoking before your MI?

Did you try to give up smoking before your MI?

Did you consider yourself to be at risk of a MI before it happened?

Appendix 8: Interview Schedule

Interview Questions/ Prompts

1. How has your quality of life changed (if at all) since your heart attack?

Prompts:

- How satisfied with your life are you since recovering from your heart attack?
- To what extent do you see yourself as having recovered?

2. Has recovering from a heart attack brought with it any new opportunities?

Prompts:

- New interests? New activities? New friendships? New work roles? New skills?

3. Has recovering from a heart attack changed how you take care of yourself?

Prompts:

- Changed your attitude to or how much priority you give to taking care of yourself?
- Being harder or easier on yourself?
- Judging yourself more harshly or leniently?
- Changed your motivation to take care of yourself?
- Changed your health behaviours?

4. How is recovering from a heart attack impacted on you as a person?

Prompts:

- Has it changed how you see yourself?
- Have you surprised yourself in any ways? E.g. by how you are coping?
- Would you consider yourself to be a stronger person now?
- How do you feel about difficulties that come your way now?
- How accepting of things are you now compared to how you used to be?

5. How has recovering from a heart attack affected your relationships with those people who are most important to you?

Prompts:

- Changed the way you offer or accept help from others? Or how you feel about that help?
- Changed the way you show or tell significant others that you care?
- Changed the way others tell or show you that they care?
- Changed how do you feel about expressing your emotions now?
- Changed how your value these relationships?

6. How has recovering from a heart attack affected what you consider to be important in life now?

Prompts:

- Has the value of your life changed? How?
- Has the value of your health changed? How?
- Would you say you better appreciate each day since your recovery from your heart attack? If so can you give me some examples?

7. What, if anything, are you doing differently now having recovered from your heart attack?

Prompts:

- How you live each day?
- How you live your life?

8. How do you see your future now?

Prompts:

- In relation to who you are as a person?
- Your relationships with others?

Appendix 9: Sample of Reflective Diary

14/04/14	<p>Annotating transcripts and identifying themes. One of the things that has struck me is how novel some of the questions I asked in the interview were to the participants. Some of the questions about changes to lifestyle etc seem to be easily answered whereas more person reflections that were emotionally based took more thought and seem to be things that participants hadn't considered before.</p> <p>I'm also noticing how sceptical I am of some of the things people are saying. I think this is stemming from experience in assessing and working therapeutically with someone in which you know that what they are saying is very different to what they have been doing and when they go on to contradict themselves this reinforces what you thought. For example participants statements about coping well or being happy with life but then later in the interview giving a different account of specific areas of life which would contradict what they originally said.</p>
17/04/14	<p>Whilst annotating the transcripts and identifying themes today I started to consider some of the potential reasons why the participants agreed to take part in the study. For one person it appeared that they didn't really feel heard by medical professionals over the course of their treatment, so maybe this interview was an opportunity to get those opinions and feelings heard? For another it seemed that there were still questions he wanted answered in relation to how he was feeling following the MI. For him it was curious that he was feeling and reacting so emotionally to things that he wouldn't have reacted to before. This he couldn't understand and I had the feeling he came to be interviewed in order to get some answers as to why that was happening.</p>
27/04/14	<p>Whilst annotating the transcripts and identifying themes today I started to notice that the two long distance lorry drivers that I interviewed had some similar themes that were unique to them. Both were very determined to get back to work and that the driving force behind this was that they needed to maintain their finances. Money was reiterated by both men as being important, even more important than health. This was something quite unique to these two men as no others had mentioned it. I wonder if this is because they were self employed as long distance lorry drivers therefore their financial situation was very much dependent on them being physically well enough to work. No other participants were self employed.</p>
8/05/14	<p>Noticing differences in responses from the long distance lorry drivers to the rest of the sample. Other's talk a lot about family and friends being important post MI but the lorry drivers less so. They talk more about work and money being important and how they are more isolated/ lonely and independent whilst recognising that this is largely due to their job. I wonder if this is something they are happy with leading that lifestyle of being alone and on the road a lot?</p>

Appendix 10: Sample of Transcript

Developing Emergent Themes – Participant 1 – Pseudonym: Adam		
Emergent Themes	Original Transcript	Exploratory Comments
<p>Ambivalent about change</p> <p>Anxiety about the future</p> <p>anxiety about death/ dying</p> <p>Physically active</p> <p>justifying drinking</p> <p>Moderation</p> <p>rumination</p> <p>ambivalence about change</p> <p>Satisfaction with life</p>	<p>I: I am going to ask you some questions now about how things have been since you had your heart attack, ok?</p> <p>I: So, how has your quality of life changed since your heart attack?</p> <p>P: I <u>wouldn't say it has changed considerably</u>, I think you tend to <u>take it more easily</u>, you don't push yourself like you used to, because you think <u>what if?! So, I still play golf, I still do things that I normally do</u>, such as driving and going out, having a few beers, <u>I don't drink excessively, I never have, but I like to have a drink obviously, like the same as everyone else but I tend to do things now more in moderation rather than without thinking, I think before I do anything. I wouldn't say that my lifestyle has changed dramatically.</u></p> <p>I: How satisfied with your life are you since you have recovered from your heart attack?</p>	<p>-Not a huge change but implies that there has been some change</p> <p>-take what more easily? Life? Work? Using you instead of I, recognising/ adjusting to the change he has made?</p> <p>-Implication that he used to push himself but doesn't now, this is a change, anxiety about the future? About dying?</p> <p>-Remains active</p> <p>-justifying alcohol consumption? Does he think I'm judging him?</p> <p>-Realisation of his limitations?</p> <p>-rumination, stopping to think, less reactive?</p> <p>-use of the word dramatically implies there is change but the change isn't great</p>

<p>wake up call</p> <p>better health behaviours justifying drinking healthier diet</p> <p>healthy diet</p> <p>wake up call rumination</p> <p>new eating habits</p> <p>motivation to try new things</p>	<p>P: Yes, I am <u>very satisfied</u>, I think, possibly it was a <u>wake up call</u>. I had to <u>pull the reins in</u> on certain things like, smoking, <u>drinking</u>, <u>not that I was a big drinker but it makes you think a little bit</u>, <u>diet</u>, <u>definitely</u>. My <u>diet was terrible</u>, I was having chips everyday of the week and everything else. I eat more healthily now, I think it was just a bit of a <u>wake up call</u> and made me <u>start thinking</u> but the quality of life is as good as any and probably in many cases, a bit <u>better because I enjoy eating different foods</u>, whereas before I wouldn't do it <u>because of</u>, now that <u>I have tried it, I'm doing it, I enjoy what I am doing</u>.</p> <p>I: To what extent do you think, do you see yourself as being recovered?</p> <p>P: <u>Physically, I would say probably 90% physically. I do get tired, I think it might be medication, I don't know. I really don't know why, but I do get tired during the day if it is a long day or I have</u></p>	<p>-Sense of uncertainty with level of satisfaction</p> <p>-wake up call</p> <p>-cliché</p> <p>-health behaviours changed</p> <p>- Needed to justify his drinking again</p> <p>-certainty that diet has changed for the better</p> <p>-wake up call repeated again</p> <p>-implies that thinking/ reflecting wasn't something he did before, change</p> <p>-quality of life better because of variation in eating habits?</p> <p>-trailed off, didn't state why he wouldn't try different foods</p> <p>-change has been the motivation to try new things?</p> <p>-Differentiated between his types of recovery: physically and psychologically</p> <p>-tiredness due to external reasons i.e. medication</p>
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tiredness	had a long week in work, I tend to be in the house in the evenings and I do feel <u>tired</u> , so on that note I <u>never used to</u> . Other than that, <u>I don't go running around playing football and stuff like I used to but I am 53 years of age</u> , however, I can still play with my daughter, I can still do things like I have always been able to do, I go out skiing when it's snowing when it comes hopefully but yeah, I would say about <u>90%</u> .	-tired repeated for third time, important to him? Concerning him? -wasn't tired in the day before
reminiscing about fitness externalising activity levels older age		-reminiscing how active he used to be -puts the lack of this level of activity down to growing older, yet insists he can still do all of the things he used to, so is it really older age?
psychological recovery	Psychologically, I would say it is different, I think it <u>takes some getting used to</u> that you have had a heart attack and out of the blue and not expecting it, I think it does <u>take some getting used to</u> and it does <u>affect you emotionally</u> as well. Yeah it does, but I would say emotionally, <u>I am not low and I don't feel ill and I don't feel sort of um, that it is the end of the world</u> but, you do <u>sit back occasionally and think to yourself, what if!</u> Especially when you see your daughter in front of	-repetition of 90%, is this a level he is satisfied with? What would 100% look like? Was he at 100% just before the MI?
time to adjust		-psychologically feels different to physically, take more time to adjust to the change?
time to adjust		-takes some getting used to repetition
emotionally affected		-emotionally affected
not feeling low		-again, does he feel I'm going to judge his mental health? Like I judge his drinking?
rumination		-reflecting on what's happened again
anxiety about mortality		-anxiety about mortality? -reflecting on what he would be leaving behind if he were to die and